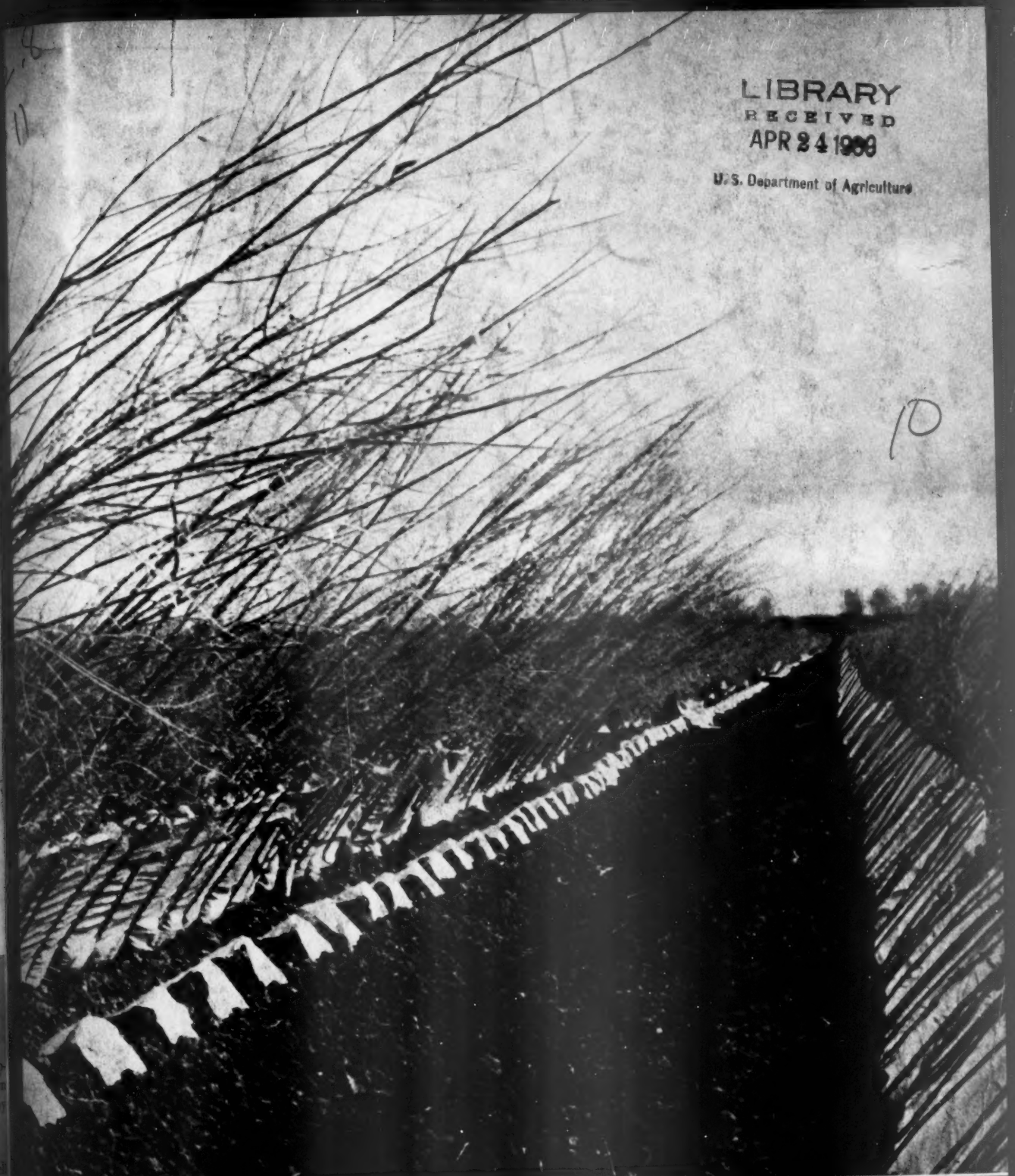

Pacific PULP & PAPER Industry

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Blind Man's Bluff

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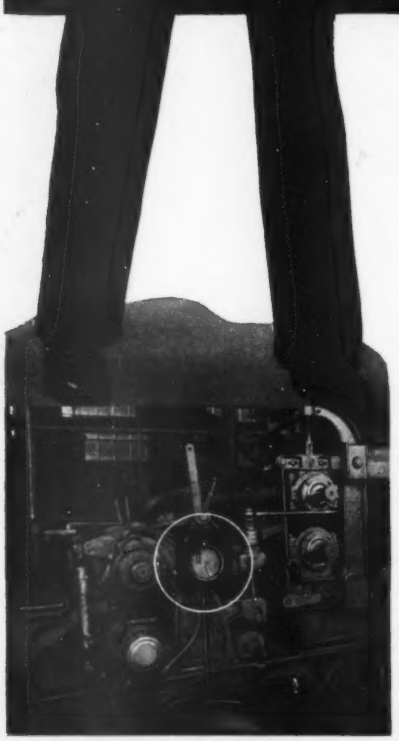

CUT COSTS TO THE BONE! Here's the Taylor Recorder, shown at work on the press section of a large modern high-speed machine. It writes a minute-by-minute record of the pressure on each side of the roll... and so helps the operator keep pressure under correct control . . . and save his plant money!

Take costly guesswork out of weight adjustment—and more water out of your sheets! . . . Use this Taylor Recorder!

YOUR press roll operator may watch crowns and adjust weights carefully —as he sees fit. Yet, because he's only guessing, your pressure may vary greatly. One surprised mill found it varied 3000 lbs. on opposite ends of the roll! And when pressure varies greatly, as it did in this case, it can harm paper quality. And boost your drying costs sky high!

Now, it's easy to avoid these losses. Simply put a Taylor Recorder on the job! This precision instrument writes an accurate record of the exact pressure on each end of the roll. With this record before your operator, it's easier for him to keep pressure even... and save you money in these important ways:

✓ Ability to carry maximum permissible nip pressure at all times removes a greater amount of water at your press section—*where removal cost is only 1/10th of what it is in your dryer.* This is actually a 1,000% cut in drying costs!

✓ Uniform nip pressure also gives you a sheet more uniform in thickness, tensile strength, density, opacity, porosity, and finish.

✓ Even pressure at both ends of the roll practically eliminates uneven felt wear. Often this saving *alone* pays for the Taylor Recorder in a few months!

✓ Even pressure also cuts excessive trim losses usually caused by over-dried and under-dried edges.

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Pacific PULP & PAPER Industry

The Journal of the Pacific Coast Industry

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Japan May Relax Pulp Import Restrictions Soon

● Although Japan is likely to relax its credit restrictions some time this spring and thus enable Pacific Northwest mills to ship greater quantities of pulp to that market, there is no doubt that Japan will dominate the trade in the Far East, according to Oscar A. Jorgenson, treasurer and assistant manager of the British Columbia Pulp & Paper Company, who has returned to Vancouver head office after a two months' visit to Japan and China.

Mr. Jorgenson, although admitting the increasing control of Japanese interests across the Pacific, says that it is impossible not to admire the Japanese people for the progressive spirit they have shown and the charming manners they continue to display to foreign visitors.

"The war may be unpopular, but the Japanese are determined to support their leaders and to see it through," Mr. Jorgenson told Pacific Pulp & Paper Industry.

The British Columbia pulp executive said that the rayon and paper industries contributed a great deal to Japan's national economy, and for that reason the government was pursuing a policy designed to safeguard them. Productive capacity of Japan's heavy industries is lagging behind the budget, and for that reason some readjustment of the exchange regulations now in force seemed inevitable.

"The Japanese market is as eager as ever to buy pulp in the Pacific Northwest, but the government has refused to grant the necessary credit for maintenance of a steady flow of imports," said Mr. Jorgenson. "The Japanese government exercises full control over foreign exchange, imports and exports, regulating trade to and from Japan in such a way as to preserve as nice a balance as possible. If exports from Japan decline, the government arbitrarily reduces imports accordingly. The policy has been to combine Japan's gold production, approximating 200,000,000 yen per year, with her exports, controlling the total to balance the imports."

Mr. Jorgenson said that when he left Tokyo there was some talk to the effect that the budget might be altered to permit easement of pulp import regulations in April or May.

● Mr. Jorgenson believes that Japan will be able to finance its war without serious strain on reserves. The public has so far subscribed about five billion yen, or $1,350,000,000, to the war, but the savings of the people still exceed that amount by the ratio of eight to five, so there is still plenty of idle money to be tapped for the war chest. So far as he could judge, the Japanese masses had not suffered from the war, chiefly due to the different standards of living prevailing in the Orient.

"The Chinese appear to have settled down to a test of military and economic endurance while always waiting for a diplomatic break of some kind. So long as the guerilla warfare is continued, Japan will be handicapped in restoring order in the conquered territory and development of markets in China will be postponed accordingly.

"Whatever happens, Japan will be left the dominant power in the Far East, assuming a position which Great Britain voluntarily abandoned in 1927 when she and other nations surrendered the concession at Hankow and thus eliminated the influence of the great powers in that vital center of Chinese trade. No one today seriously believes that China will be able to dislodge Japan from the fruitful Yangtse valley."

O. A. JORGENSON
Returns From the Orient

Production Ratio Steadily Rising

● The weekly percentage of production to capacity report of the American Paper & Pulp Association shows a steady rise in paper manufacturing.

From 80.9 per cent for the week ending February 25th the ratio rose to 85.8 per cent for the week ending April 1st. For the comparable week of 1938, ending April 2nd, the ratio was 72.3 per cent, showing a gain of 13.5 per cent.

For the first 13 weeks of 1939 paper production stood at 81.1 per cent as compared with 67.5 per cent in 1938 and 90.2 per cent in 1937. The first 13 weeks in 1936 were 76.9 per cent.

Paperboard operating ratios as reported by the National Paperboard Association a rise from 68 per cent for the week ending February 25th to 74 per cent for the week closing April 1st. February ratio was 67 per cent against 60 per cent in 1938 and 86 per cent in 1937, and 67 per cent in 1936.

Paper Plays Important Role In Protecting Imperial Valley Produce

Plant caps, windbreaks, date bags, crate liners, car liners and labels contribute to successful growing, shipping and marketing of vegetables and fruits

DESERT into paper market is the miracle of the Imperial Valley performed in less than four decades. For in 1900 this ancient delta of the swift flowing Colorado was the Salton Sink, desolate wasteland important only in history as the grim last stretch from east to Pacific Coast, traveled by some 8,000 Forty-niners riding the Butterfield Overland Mail to the California gold fields.

Here less than two inches of rain fell annually, summer sun temperatures soared to 150 degrees, and nothing but sparse chaparral and cactus could exist. Then in 1901 the genius of the engineer began the transformation with the building and completion of the first irrigation project. Once water reached the fertile land it burgeoned with rich agricultural production. A flood in 1904 impeded progress, but from then on the area rapidly developed to earn the title of the nation's salad bowl.

Problems peculiar to the sector arose and found solution through the use of paper. Winds and the sands that blew were a menace to the young sprouting plants. With crops planted and first appearing during winter months, even in this sub-tropical area cold snaps offered another threat to their success. Produce unless crisply fresh could find no favored markets. And a fourth problem was that of protecting tender vegetables from the freezing temperatures found en route to market in the northern sectors. The introduction of the date as a fruit crop in adjacent Coachella valley as well as in Imperial also raised a new agricultural problem. The paper industry met these various needs of the growers with specialty paper products. Brushing and capping paper gave protection from the wind and frost; crate liners and wraps solved the problem of keeping produce fresh while en route to market; car liners solved the need for keeping the sub-zero cold out of cars and crates; and special bags were developed for the date growers, about which more later.

A quick glance at the Imperial Valley for an estimate of its agricultural character can be obtained through planting figures. Acreage farmed during 1937 totaled 734,161,303,444 acres of which were farmed twice during the year. This gives an indication of the high fertility of the land. There were that year 4,995 farms averaging 86.2 acres per farm, forty per cent of which were farmed by owners, the rest by tenants.

To give an estimate of the type of paper products needed, a listing of garden crops and fruits with quantities grown and shipped during 1937 follows: (165,709 acres were in garden crops and 13,442 acres in fruit during 1937); lettuce—10,070 (all figures in carload shipments); carrots—2,318; miscellaneous vegetables—2,568; citrus fruits—1,221; watermelons—4,508; cantelopes—9,686; honeydew melons — 3,350; mixed melons—1,140; a total of 34,861 carloads of fruit sand vegetables.

In 1916 lettuce was grown in what was then considered large quantities when sixteen carloads were produced and shipped from the valley. Lettuce was then first gaining its national importance as an essential of the American diet. Despite the fact that Darius the Great enjoyed lettuce 500 B. C., Galen, the Greek physician prescribed it for insomnia, Charlemagne grew his own in the royal garden plot, Catherine the Great flew into rages when not provided her regular daily salad, and the Italians and French knew it in the Seventeenth Century as Neapolitan Cabbage and the English as Webb's Wonderful, the Americans stuck to beefsteaks and spuds until the time of the war. It was then that the Imperial Valley and other lettuce raising sectors enjoyed a boom. The sixteen carload shipment of 1916 zoomed up beyond the 10,000 mark in little over ten years time.

• If any vegetable must reach the market in the top-notch of freshness it is obviously lettuce. It was early learned that the refrigerated car was not enough, and here the paper industry came to the rescue with the crate liner. Crates of Oregon and California pine shook are now a standard size of 13″x18″x24″. Lettuce picked in the early morning hours is brought to the packing sheds where it is dumped onto large sorting tables. Here sorters and trimmers prepare it for packing. Crates are made in the yard outside the sheds, loaded onto moving belts which carry them into the shed where liners are placed in them and they move on past the packers who fill them; from there they go to the icing machine and finally to the lid or cover machine where they are closed and so moved on into the refrigerated cars.

Crate liners used are of two varieties, waxed paper and parchment paper. A close division is made in the use of these two types with about even amounts used from year to year. Sheets are 74″x21″, two being used to a crate. The paper is ordinarily a 40 pound kraft stock. It is estimated that 75 tons of this type of paper is used annually by the lettuce growers.

Carrots are also packed in a similar manner and use the same type crate liners. The estimated tonnage used for carrots is 285 tons annually.

Lettuce, carrots and miscellaneous vegetables it was early learned must be protected in their movement to market not only from losing their own chill temperature which preserved their freshness but also in turn from becoming too chilled. Carloads were lost in early times through freezing and frost bite in the cars themselves whose temperatures dropped below the freezing point while passing over high mountains and into frigid areas. The solution to this problem was found in the use of a carliner. A laminated paper of two sheets of 20 pound kraft with asphalt as a binder proved the best possible answer to the shippers' problem. Eight hundred feet of this paper is used per car in 36″ widths. Fifty-five tons are used in an average year.

Melons suffered the most in early plantings from wind and cold. Here the paper man came to the growers' aid with brushing paper and capping paper. The ingenious chap who figured out the windbreak idea for melons is unknown and unsung, but he had a cracking good idea. It has worked for some years with excellent results. Along the canals of the valley and the rivers of Mexico to the south grows a weed called Arrow Weed. This plant grows to the height of a man. It grows rapidly, dies and remains a tall slender stalk. Mexicans harvest it like a crop and sell it to the growers who in turn thrust it into sides of the melon rows at a forty-five degree angle as a support for the brushing paper which makes the windbreak. The paper derives its name from the brush used to hold it up. Paper used varies in widths: some common widths are 27", 30" and 36". It is a 40 pound kraft. Cantelopes, honeydews, honeyballs, and watermelons are brushed. The practice is for the early crops to be brushed with less acreage so treated as the season plantings move on. Three hundred fifty to four hundred tons of this type paper is used annually.

As counterpart to the wind and frost protection is the cover paper, sometimes referred to as the hot cap. A 25 pound glassine paper is used ranging in size from 16"x18", 18"x18" to 20"x20". No support is used in placing the paper over the plant. The field workers gain the knack of crimping the paper slightly and setting it over each plant so that it will remain providing a miniature hot house for each plant. The estimated annual tonnage of this paper used is 140 tons.

Tomatoes, melons and citrus fruits are wrapped for additional protection. Ten pound tissue is used for tomatoes. Cantelopes, honeydews and honeyballs use a manila tissue stock. No tonnage figures are available for this type of paper. Only cue to the size of the market lies in carload shipment figures. Melons wrap on an average 36 to a crate, 300 crates to a car.

The label market should be mentioned inasmuch as all crates carry growers labels. Well over a hundred million labels go into the valley annually.

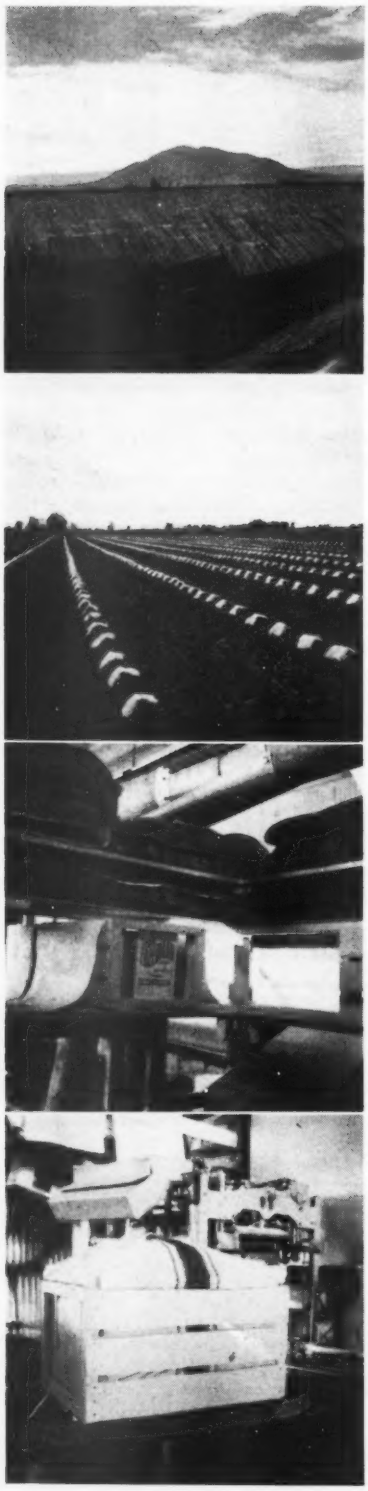
Paper Bags Protect Dates

● Imperial valley only has 150 acres of date palms. Coachella Valley, where the growing has reached sizeable proportions reports 1500 acres. The palms are found throughout this desert area in little oasis like patches, no large groves of them to be found anywhere. Problems arising in this crop which the paper industry came to solve were caused by damage to the fruit from the rare rainfall and the eager and very hungry desert birds.

Date bags or covers for the large date clusters while growing was the answer. Originally designed to protect the dry or Deglet Noor dates, where moisture is disastrous, they spread quickly to the soft varieties where birds were more of a menace and the weather a secondary worry. It is estimated that 80 per cent of the date groves use paper bags now. The effect of moisture on the date is a cooking or steaming process. So high does the temperature go that a sudden shower is quickly changed to hot steam spoiling the crops.

The covers are a cylindrical section open at bottom and top,

PAPER BAGS PROTECT GROWING DATES in the Coachella and Imperial Valley of California.



PAPER PROTECTS the winter grown vegetables in the Imperial Valley from planting through shipment . . .

Plant caps, windbreaks, crate liners and car liners, each play an important part in the successful growing and shipping of produce.

stitched to crate the cylinder, usually of basis 55 lbs. creped kraft. Waxed and unwaxed paper have been used, the unwaxed however is believed to be better as it does not promote sweating even in dry weather or when the humidity is high. Airflow is necessary hence the open bottoms of the bags.

This extremely busy and rich agricultural area comprised of the former desert lands of the Coachella and Imperial Valleys consumes annually an estimated 670 tons of paper in caps, brushing paper, crate liners, and car liners to which must be added consumption of labels, wraps, and specialty items such as the date covers.

Grant Fowler Named Powell Superintendent

● Grant M. Fowler, formerly superintendent of the Laurentide mill of Consolidated Paper Company, Quebec, has been appointed superintendent of Powell River Company. and has already taken over his new duties in the British Columbia paper town.

Mr. Fowler succeeds the late C. H. (Harry) Carruthers, who died several months ago. He is a Canadian and a graduate of McGill University, Montreal. He served overseas with the Canadian troops and soon after his return entered the paper making business. He has spent nearly twenty years in the newsprint industry, most of the time with Laurentide and Consolidated.

Coleman Named Paraffine General Superintendent

● Two men from as widely varying backgrounds as can be found in American industrial life were today named to manage the huge Pabco plant at Oakland by W. H. Lowe, president of The Paraffine Companies, Inc.

James T. Coleman, who started with the firm as a union mechanic more than a quarter-century ago, was named general superintendent. He had been master mechanic, plant engineer, and later assistant general superintendent. He is well known in Emeryville as a city councilman and president of the school board and as a leader in civic and industrial affairs.

Ford Tussing, graduate of the Stanford Graduate School of Business Administration, was appointed assistant superintendent. Joining the firm in July, 1926, he has served as head of the Statistical Department, assistant office manager and manager of production control.

Sanigard Plant Moved to Los Angeles

● Warren Dunnell, president and manager of the Sanigard Cover Co., announced the transfer of the production department of his company from Portland to Los Angeles. The sales headquarters have been in Los Angeles for some time. The move was begun in March and was expected to be completed by the latter part of April. The new offices and plant will be at 3101 Pasadena Avenue, Los Angeles.

Coast Box Makers to Meet At Del Monte June 26-28th

● President William J. O'Donnell and the board of directors of the Pacific Coast Paper Box Manufacturers' Association announced on March 21st that the Twenty-fifth Annual Convention will be held at the Hotel Del Monte, Del Monte, California, on Monday, Tuesday and Wednesday, June 26, 27 and 28th.

Howard A. Campbell of Fibreboard Products, Incorporated, San Francisco, has been selected by the administration committee to fill the important post of convention chairman. Mr. Campbell has appointed the following men to serve with him as chairmen of the several convention committees: W. H. Thomas, program committee; R. O. Comstock, invitation committee; Fred C. Kewell, banquet and entertainment committee; Gus Trost, golf committee; Sam Platt, reception and ladies committee.

Attendance at the 1938 Del Monte meeting set a new record with one hundred and thirteen present. An even larger attendance is expected this year because of the Golden Gate International Exposition now open on Treasure Island in San Francisco Bay.

Paraffine Elects Shainwald Executive Vice-President

● Election of R. H. Shainwald as Executive Vice-President of The Paraffine Companies, Inc., by the Board of Directors in meeting today (Tuesday), was announced by W. H. Lowe, Pabco president.

Shainwald has been with the company more than 25 years, starting as a factory hand and later becoming Treasurer and Vice-President.

Shainwald is also President of Plant Rubber and Asbestos Works, Schumacher Wall Board Corporation, and Vitrefrax Corporation—affiliates and subsidiaries of Pabco.

Pacific Roofing Plant To Be Finished in May

● The new plant of the Pacific Roofing Company, now under construction on N. W. Front St., Portland, Oregon, is expected to be completed and in operation about the first week of May, according to manager Tom Young.

Coast Men Join Superintendents' Association

● The American Pulp & Paper Mill Superintendents Association announces that among the new members are two Pacific Coast men, John F. Smalley of the Crown Willamette Paper Company, Division of Crown Zellerbach Corporation at Camas; and, Alexander V. Alm of the California Fruit Wrapping Mills of Pomona, California.

Service Pins Awarded to Port Angeles Men

● Four Fibreboard men were recently awarded service pins at a meeting of the Pivot Club in Port Angeles.

Donald Sheatsley, grinderman, and Art Wheeler, beater foreman, received fifteen year pins. Joe Pickering and Harry Lannoye each received five year pins.

Briton Says Currency Causes Pulp Troubles

● The British correspondent of The Swedish Wood Pulp Journal states, in a dispatch published in the February 28th issue, that the solution to the international marketing problems of the pulp and paper industries lies in fundamental monetary reform. We quote in part:

● "To digress somewhat and to conclude, there does exist over here, behind all the mutual recrimination and bellicose after-dinner speeches, a growing conviction that the solution of our present problems, in the paper industry as in all others may lie not in price cartels, trade associations and the like, nor in import quotas and tariff walls, but in fundamental monetary reform.

"A correspondent writes in 'The World's Paper Trade Review' as follows: '. . . Steadiness is frankly recognized on all sides as being the first requisite for sound business. Yet prices do waver; so, "who's to blame?" Surely the real answer is that it is not, at the bottom, persons who are culpable, but the financial system by means of which all persons operate. We are living in an age of machine production, when we could easily produce far more than we can consume. It ought not to matter much if we did. But, unfortunately, our productivity is "cabin'd, cribbed, confined" —bound down by a monetary system designed for a hand producing age and developed by accident. . . .' "

This correspondent also says in his article that while most good established brands of strong unbleached sulphite are selling for around $38.50 c.i.f. British ports, one first class brand is reported to have been offered at $35.00. Easy bleaching is quoted at around $40.80 and bleached sulphite runs from $45.50 to $46.80.

He goes on to say, "One particular Scandinavian mill has caused rather a stir in the trade by quoting 8 pounds and 15 shillings ($40.90) for prime bleached sulphite for 1939 and 9 pounds and 5 shillings for 1940 delivery ($43.27). Kraft pulp is particularly weak, he says, with prices as low as 6 pounds 2 shillings and 6 pence being quoted ($28.65). Quoting again:

● "A new Baltic mill has now added its production to the list of competitive brands in the market. Buyers with contracts at prices in excess of present levels are said to have been approached with extremely tempting proposals involving further adjustments. It is generally felt with regard to kraft pulp that a bitter price war is imminent unless steps are taken by producers to stabilize both the output and price of their commodity."

Chase Bag Plant In Operation

● The Chase Bag Company plant recently completed in Portland is now in production on fabric bags. Operations on open mesh paper bags will start about April 25 or May 1.

Ted Cooper Back on the Job

● E. W. G. Cooper, assistant paper mill superintendent of the Camas, Wash., mill of the Crown Willamette Paper Company, returned to active duty at the plant early in April, after an extended illness.

Harold D. Cavin Accepts Position at Mobile

● Harold D. Cavin, pulp and paper mill engineer of Seattle, leaves April 19th for Mobile, Alabama, to represent Hardy S. Ferguson as resident engineer during construction of the Hollingsworth & Whitney bleached kraft pulp and paper mill.

Mr. Cavin will go first to New York City for consultation with Mr. Ferguson whose organization has designed the new plant and will supervise its construction. He is scheduled to be in Mobile on May 1st when construction is to begin. Mrs. Cavin will accompany her husband to New York and then to Mobile where they will make their home for the next year or more while the large plant is under construction.

Harold Cavin's first association with Mr. Ferguson was in 1928 when the latter designed and constructed the kraft pulp and paper mill in Tacoma for the Union Bag & Paper Power Corporation, now the St. Regis Kraft Company. When Mr. Ferguson designed the large bleached sulphite pulp mill at Everett for the Puget Sound Pulp & Timber Company (now the Soundview Pulp Company), Mr. Cavin served as a local engineer. He remained at Everett and was plant engineer until 1936 when he became resident engineer for the St. Regis Kraft Company.

The relationship between Mr. Ferguson and Mr. Cavin continued on the reconstruction of the St. Regis mill at Tacoma when the bleach plant was added and the sulphate mill modernized in 1937. The plans were drawn by Hardy Ferguson and Mr. Cavin carried them out as resident engineer for the company.

In the same year Mr. Cavin formed the engineering firm of Cavin, Marshall & Barr which designed and constructed the new unbleached sulphite pulp mill at Bellingham for the Puget Sound Pulp & Timber Company. The plant was completed and placed in operation in June of 1938.

At Mobile Mr. Cavin will be working with an old friend, Dennis E. Cousins, who was superintendent of the Union Bag & Paper Power Corporation's sulphate pulp mill in Tacoma at the time it was constructed in 1928. Mr. Cousins, an experienced sulphate operator, has recently joined the Hollingsworth & Whitney organization at Mobile.

Millard Rawlings Transferred to San Francisco

● Millard Rawlings of the technical department of the Crown Willamette mill at Camas, Washington, and registrar of the paper school there, has been transferred to San Francisco, where he will work in the sales department.

HAROLD D. CAVIN
To Mobile, Alabama

●

Annual Meeting Superintendents—TAPPI

The annual joint meeting of the Pacific Coast Division of the American Pulp & Paper Mill Superintendents Association and the Pacific Section of TAPPI will be held at the Hotel Winthrop, Tacoma, Friday and Saturday, June 2nd and 3rd.

General Chairman NILES ANDERSON has announced that the program will include a talk by C. E. CURRAN, In Charge, Section of Pulp & Paper, U. S. Forest Products Laboratory, Madison, Wisconsin. A list of the papers to be presented will be announced shortly. The golf tournament will be held on Friday afternoon at the Tacoma Country & Golf Club. There will be a special program for the ladies who attend.

All connected with or interested in the pulp and paper industry are invited to attend the joint meeting of the Superintendents and TAPPI. Reservations should be addressed to NILES ANDERSON, St. Regis Kraft Company, Tacoma, Washington.

Camas TAPPI Dinner Draws Large Crowd

To hear three technical papers and a talk by W. R. Barber on the value of the Shibley Award to the industry and to the men who take part in the competition

● More than 130 men attended the sixth TAPPI dinner meeting of the 1938-1939 season which was held at the Crown Willamette Inn, Camas, Washington, on Tuesday evening, April 4th, and heard the presentation of three technical papers and a talk by W. R. Barber, technical director of the Crown Zellerbach Corporation.

With the presentation of these papers a total of five have been given by the younger technical men of the West Coast pulp and paper industry in competition for the Shibley Award of $50 for the best paper presented at a dinner meeting by a mill man during the year.

Two papers were presented at the Port Angeles dinner on January 10th: "The Meta-Bisulphite Method for the Determination of Residual Chlorine," by A. Orup and R. I. Thieme of the Soundview Pulp Company of Everett; and, "Investigation of the Sources and Characteristics of Dirt in Bleached Sulphate Pulp," by Robert M. Kuhn of the St. Regis Kraft Company, Tacoma.

The other three, presented at the Camas dinner on April 4th were: "A New Method of Pulp Testing Control — The Modern Tester," by Claude Christensen of the Technical Department, Crown Willamette Paper Company, Division of Crown Zellerbach Corporation at Camas; "A Discussion of the Operation of Photo-Electric Consistency Controllers," by L. A. Wendt, of the Everett Mill, Pulp Division, Weyerhaeuser Timber Company; and, "Various Percentages and Beating of Sulphite Pulp in Mixtures with Groundwood Pulp for Newsprint," by John Howarth Bardsley of the Technical Department of the Powell River Company, Powell River, B. C.

The winning paper out of these five will be selected by the officers and executive committee of the Pacific Section of TAPPI and the award presented at the joint meeting with the Superintendents Association in Tacoma on June 3rd.

Following the excellent turkey dinner which was arranged by Fred A. Olmsted, technical supervisor of the Camas mill, the TAPPI group adjourned to the assembly hall to hear the papers which appear in this issue of PACIFIC PULP & PAPER INDUSTRY.

Pacific Section Chairman, N. W. Coster, presided and introduced Dr. B. W. Rowland who is head of the colloid and physical chemistry division of the Institute of Paper Chemistry at Appleton, Wisconsin. Dr. Rowland expressed his pleasure at having an opportunity to visit the Coast industry, to attend the TAPPI dinner meeting and to meet a number of the technical men. He spoke briefly on the post graduate work offered by the Institute.

To explain the purposes of the Shibley Award and to stress the value of preparing papers to the younger technical men, Chairman Coster called on W. R. Barber, technical director of the Crown Zellerbach Corporation. Mr. Barber's inspirational talk is published in full elsewhere in this number.

Mr. Coster added that the response of the men in the industry to the stimulation of the Shibley Award was very gratifying, particularly as this was the first year of the contest.

Mr. Bardsley of the Powell River Company presented the first paper. Mr. Wendt of the Weyerhaeuser organization gave the second paper and Mr. Christiansen of the Crown Willamette mill at Camas concluded the program with his paper.

Following each paper a number of questions were asked by the men in the audience and answered by the authors.

Before adjourning Chairman Coster expressed the appreciation of TAPPI to Mr. Olmsted for his work in planning the successful meeting.

● The seventh and final dinner meeting of the 1938-1939 series will be held in Vancouver, B. C., on Saturday evening, May 6th, instead of on Tuesday evening, May 2nd, as originally scheduled, Mr. Coster annaunced, with Harry Andrews, control superintendent of the Powell River Company as chairman in charge of arrangements. The dinner will be held at the Terminal City Club at 6:30 p. m.

Mr. Coster also reminded the men

●

May Dinner Meeting
In Vancouver, B. C., May 6th

The May Dinner Meeting sponsored by the Pacific Section of TAPPI will be held at the Terminal City Club in Vancouver, B. C., on SATURDAY evening, MAY 6th, at 6:30 p. m.

Harry Andrews, Control Superintendent of the Powell River Company, is chairman in charge of the program.

The speakers will include C. D. Orchard, Assistant Chief Forester of British Columbia, who will talk on forestry problems with special emphasis on selective logging and fire prevention, and a representative of the Nichols Engineering & Research Corporation of New York and Montreal will discuss the economic and technical problems involved in burning pyrites for the production of acid in sulphite pulping.

The Weyerhaeuser Timber Company's talking moving picture, "Trees and Men," will be shown.

RESERVATIONS should be sent to HARRY ANDREWS, Powell River Company, Powell River, B. C.

present that the annual joint meeting of the Pacific Coast Division of the American Pulp & Paper Mill Superintendent's Association and the Pacific Section of TAPPI will be held at the Hotel Winthrop in Tacoma on Friday and Saturday, June 2nd and 3rd. He urged their attendance to participate in the interesting program being planned by Niles Anderson, general chairman.

The following registered at the Camas, Washington, dinner meeting on April 4th:

• **Jerry Alcorn,** Pulp Division, Weyerhaeuser Timber Co., Everett; **Leslie Anderson,** Pulp Division, Weyerhaeuser Timber Co., Longview; **C. E. Ackley,** Hawley Pulp & Paper Co., Oregon City; **Douglas B. Armstrong,** Oregon Pulp & Paper Co., Salem; **W. M. Bain,** The Glidden Co., Chicago; **John Howarth Bardsley,** Powell River Co., Powell River, B. C.

W. R. Barber, Technical Director, Crown Zellerbach Corp., Camas; **Chester Beals,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas; **C. H. Belvin,** Chromium Corp. of America, Portland; **A. S. Boag,** Rayonier Incorporated, Grays Harbor Division, Hoquiam; **John E. Brown,** Pacific Pulp & Paper Industry, Portland; **Richard S. Buckley,** Pulp Division, Weyerhaeuser Timber Co., Everett; **A. M. Cadigan,** St. Regis Kraft Co., Tacoma.

G. W. Charters, Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas; **Claud Christiansen,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas; **N. W. Coster,** Soundview Pulp Co., Everett; **D. B. Davies,** Rayonier Incorporated, Shelton Division, Shelton; **C. J. Dernbach,** University of Portland, Portland; **O. T. Defieux,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas; **Winston O. Defieux,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas.

A. E. Erickson, Pulp Division, Weyerhaeuser Timber Co., Longview; **E. O. Erickson,** Puget Sound Pulp & Timber Co., Bellingham; **M. L. Edwards,** Pulp Division, Weyerhaeuser Timber Co., Longview; **Clarence Enghouse,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., West Linn; **Carl Fahlstrom,** Longview Fibre Co., Longview; **Frank Fales,** Oregon State College, Corvallis; **Bert W. Farnes,** Control Equipment Co., Portland; **Francis W. Flynn,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas.

• **Dr. Leo Friedman,** Oregon State College, Corvallis; **Harry Fromong,** Hawley Pulp & Paper Co., Oregon City; **G. H. Galloway,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas; **William R. Gibson,** Northwest Filter Co., Seattle; **Harry Glenn,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas; **T. W. Grant,** Columbia River Paper Mills, Vancouver, Wash.; **R. B. Haight,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas; **Kenneth B. Hall,** Improved Paper Machinery Corp., Portland.

Jan Haugerod, Crown Willamette Paper Co., Division Crown Zellerbach Corp., West Linn; **J. A. Harris,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., West Linn; **Dr. John F. Hart,** Longview Fibre Co., Longview; **John E. Hassler,** Coast Mfg. & Sales Co., Portland; **W. H. Haverman,** Pulp Division, Weyerhaeuser Timber Co., Longview; **S. Hazelquist,** Pulp Division, Weyerhaeuser Timber Co., Longview; **W. F. Holzer,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas.

H. R. Heuer, Pulp Division, Weyerhaeuser Timber Co., Longview; **L. E. Hill,** Pulp Division, Weyerhaeuser Timber Co., Everett; **W. S. Hodges,** Appleton Wire Works, Inc., Portland; **George K. Horton,** Longview Fibre Co., Longview; **J. H. Hull,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas; **Fred G. Hurst,** Portland; **James B. Hyde,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas; **W. F. Hynes,** General Electric Co., Portland.

W. C. Jacoby, Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas; **Joe G. Jenkins,** Hawley Pulp & Paper Co., Oregon City; **L. T. Johnson,** Hawley Pulp & Paper Co., Oregon City; **Lester M. Johnson,** Pulp Division, Weyerhaeuser Timber Co., Longview; **Herman Junge,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas; **W. A. Kelly,** The Waterbury Felt Co., Portland.

Frank G. Keuss, St. Regis Kraft Co., Tacoma; **Eugene Kinnaman,** Gates Rubber Co., Portland; **Robert M. Kuhn,** St. Regis Kraft Co., Tacoma; **Clyde Leiser,** Columbia River Paper Mills, Vancouver, Wash.; **Clyde E. Laver,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas; **D. K. MacBain,** Pulp Division, Weyerhaeuser Timber Co., Longview; **R. W. Martig,** Brown Instrument Co., Portland; **R. V. Maier,** General Electric Co., Portland.

• **A. M. Mears,** Pacific Coast Supply Co., Portland; **J. S. Mears,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas; **Otto Michaelis,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas; **H. Norman Miller,** Westinghouse Electric & Mfg. Co., Portland; **Paul V. Millard,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas; **R. G. Mispley,** Crown Willamette Paper Co., Division Crown Zellerbach Crp., Camas; **T. H. Moran,** Pulp Division, Weyerhaeuser Timber Co., Longview.

O. P. Morgan, Pulp Division, Weyerhaeuser Timber Co., Longview; **E. A. Morton,** Pulp Division, Weyerhaeuser Timber Co., Everett **Charles A. Newhall,** State of Washington Laboratory, Seattle; **Fred Nicholson,** Stetson-Ross Machine Co., Seattle; **Robert H. Noyes, Jr.,** Columbia River Paper Mills, Vancouver, Wash.; **F. A. Olmsted,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas.

A. W. Olson, Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas.; **H. E. Ostenson,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas; **Frederic M. Pape,** Wilson & George Meyer & Co., Seattle; **E. T. Parker, Jr.,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas; **Virgil Peters,** Longview Fibre Co., Longview; **H. T. Peterson,** Pulp Division, Weyerhaeuser Timber Co., Longview; **Marvin M. Peterson,** Pulp Division, Weyerhaeuser Timber Co., Longview.

H. Prelinger, Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas; **W. H. Rambo,** Rayonier Incorporated, Port Angeles Division, Port Angeles; **H. A. Rehnberg,** Northwest Filter Co., Seattle; **Edward D. Rich,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas; **H. H. Richmond,** Electric Steel Foundry Co., Portland; **R. E. Richmond,** Electric Steel Foundry Co., Portland; **C. B. Roberts,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas.

H. K. Roberts, Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas; **B. W. Rowland,** Paper Institute, Appleton, Wis.; **H. L. Rudow,** Scientific Supplies Co., Portland; **A. Rubbell,** Longview Fibre Co., Longview; **Rex H. Russell,** Longview Fibre Co., Longview.

Jack V. Savage, Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas; **B. W. Sawyer,** Foxboro Co., Portland; **Harlan Scott,** Pacific Pulp & Paper Industry, Seattle; **W. J. Stott,** University of Portland, Portland; **Fred Shaneman,** Pennsylvania Salt Mfg. Co. of Washington, Tacoma; **C. Sholdebrand,** Hawley Pulp & Paper Co., Oregon City; **D. L. Shirley,** Link-Belt Co., Portland; **Glen W. Smith,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas.

C. F. Stevey, Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas; **Franz Sturm,** Oregon Pulp & Paper Co., Salem; **F. F. Sullivan,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas; **Virgil M. Sutherling,** Longview Fibre Co., Longview; **E. H. Tidland,** Pacific Coast Supply Co., Portland; **V. L. Tipka,** Hawley Pulp & Paper Co., Oregon City; **Cecil Triplett,** Hawley Pulp & Paper Co., Oregon City.

R. M. True, General Dyestuff Corp., Portland; **W. M. Van Arnam,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas; **M. L. Veatch,** Stetson Ross Machine Co., Portland; **H. A. Vernet,** A. E. Staley Mfg. Co., Portland; **Harold C. Wall,** Longview Fibre Co., Longview; **L. H. Wear,** Taylor Instrument Co., Portland.

Wm. T. Webster, St. Regis Kraft Co., Tacoma; **Bernhardt Weidenbaum,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas; **Fred J. Weleber,** Hawley Pulp & Paper Co., Oregon City; **L. A. Wendt,** Pulp Division, Weyerhaeuser Timber Co., Everett.

• **R. S. Wertheimer,** Longview Fibre Co., Longview; **Rex L. West,** Longview Fibre Co., Longview; **Forrest E. Williams,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas; **James A. Wilson,** Hawley Pulp & Paper Co., Oregon City; **A. D. Wood,** Crown Willamette Paper Co., Division Crown Zellerbach Corp., Camas; **Edward P. Wood,** Pulp Division, Weyerhaeuser Timber Co., Longview; **J. L. Wright,** General Electric Co., Portland.

Crown Zellerbach Managers Meet

• The annual meeting for northwest mill managers of the Crown Zellerbach Corporation was held in Portland April 12 and 13. Present at the gathering were several San Francisco executives, including J. D. Zellerbach, Albert Bankus and R. A. McDonald.

A Discussion of the Operation of Photo-Electric Consistency Controllers

by L. A. WENDT*

DURING the past few years a number of articles have appeared describing the developing of various types of consistency measuring and controlling devices using a photo-electric cell as a primary measuring device. It is the purpose of this paper to discuss some of the variables encountered in operating consistency controllers of this type.

The measurement of consistency by this means presents a relatively simple problem; primarily that of passing a light beam of constant intensity through a representative sample of the stock flow to be measured, and secondarily, the measurement of the current variation produced by the cell.

The range of consistencies which have been successfully measured in the author's experience is from 0 to .7 per cent. The measurement of consistencies up to 1 per cent has been successfully carried out on an experimental scale and presents no problem in measurement not encountered in the lower ranges.

Various types of photo cells have been advocated. However, the copper-copper oxide cell has in the author's experience proved quite adequate. It has the distinct advantage of being a current-producing device requiring no excitation.

These cells can be obtained from several manufacturers at quite reasonable cost and are obtainable in a weather proof case which, while not intended for submersion, are easily sealed by means of waterproof cement so that they will stand submersion remarkably well. One disadvantage of this type of cell is that it will change in calibration and will have a tendency to lower in current output with age. A slight amount of moisture will render it inactive. Dead cells can be repaired at a reasonable cost.

A light source which has been found satisfactory is a 50 watt frosted mill type mazda. The intensity of the light upon the cell must be constant and for this purpose voltage regulation must be provided. In some instances storage batteries have been used as a source of power. However, an induction type voltage regulator is satisfactory if line voltage does not fluctuate abnormally.

The intensity of the light falling upon the photo cell must be within a given range, and to accomplish this the distance of the light from the photo cell should be adjustable, if conditions of stock consistency are to be changed often.

Sampling devices are of two types: Submerged cells and piped cells. In the former the lamp house and photo cell are assembled together and submerged in a stock flume or head box. In the latter type the sample is piped from a flume or pipe line to the stock cell having parallel glass walls for entrance and exit of light. The thickness of a cell will determine the range of consistencies which it will measure. For a consistency range from .2 per cent to .4 per cent a cell of 1¼ inch thickness will be satisfactory; for a range from .4 per cent to .7 per cent a cell of ¾ inch thickness has been found more suitable. For a given cell thickness there exists a range of measurable consistencies. Within this range, consistency changes produce proportional changes in current. On the lower side of this consistency range, consistency changes are accompanied by exaggerated changes in current. On the upper side consistency changes are accompanied by slight changes in current. It has been found necessary to select carefully the thickness of the stock cell for the consistency range in which the measuring device is to operate. Also a thicker cell will have a wider useful range than a thin cell.

The effect of velocity through the sampling cell is very pronounced. The tendency for sulphite stock to coagulate at lower velocities has a pronounced effect upon the accuracy of measurement. For example, a cell 1¼ inch thick when piped with 1 inch streamline copper pipe and under a head of 12 feet gave a ragged record with variations of approximately 2 microamperes. When the piping was changed to 1½ inch, the record was smoothed out to practically a straight line, the variations being less than ½ microampere. Submerged cells should be placed in flumes or head boxes where there is considerable velocity to overcome the effect of coagulation. The thickness of the stock between the plates of a submerged cell has the same effect upon the consistency range of the device as in the piped cell.

Submerged Cells Preferred

● In the opinion of the author, submerged cells are preferable to piped cells as they have the advantage of being cheaper to install and when used on unknotted stock, they do not plug up with knots. Attempts to adapt piped cells to unknotted stock have been entirely unsuccessful. For applications requiring immediate response, submerged cells are preferable to piped cells. The piped cell has the advantage of being readily cleaned and calibrated for zero consistency by passing water through it. Lamps and photo cells can also be changed more readily in a piped cell.

In regard to calibration, attempts were first made to calibrate the microampere scale in terms of consistency. In the experience of the author, this has not been satisfactory as changes in the bleachability and color of stock and the color of white water affect the calibration. When a mill start up is made with fresh water in the white water system, it is necessary to reset the control point several times during the period, while the concentration of color and solid matter in the white water system is coming to equilibrium, in order to maintain a given consistency. It has been found more satisfactory to run consistency tests on the controlled stock once a day or preferably once each shift as a means of checking the operation of the controller. There are devices for compensating for white water color but the author has

*Everett Mill, Pulp Division, Weyerhaeuser Timber Company, Everett, Washington. Presented at the Dinner Meeting sponsored by the Pacific Section of TAPPI, Camas, Washington, April 4th, 1939.

had no experience with them. Compensation for bleachability and color of stock presents a problem which does not readily lend itself to solution.

From an operator's viewpoint, it is more satisfactory to adapt the controller to the operation of the flat screens or knotters than to set the control point on a predetermined figure.

As a secondary measuring device a microammeter is used. This may be of the moving vane type or the potentiometer type, either recording or indicating. A wide scale has been found desirable. For recording and controlling, the potentiometer type is more suitable.

Either pneumatic or electric controlling devices can be operated from a potentiometer type microammeter. Electric controlling devices have the disadvantage of slower response and therefore are adapted to installation where the consistency of the incoming stock is not subject to violent changes, particularly where the stock is being pumped out of a chest and variations are more gradual and extend over a longer period of time. For application where both consistency and flow are subject to considerable variations, a pneumatic control device is preferable. In the control of consistency for flat screen knotters operating directly out of the blow pits, this type of control device has been made to function quite satisfactorily so that steady operation of the flat screen is accomplished with a minimum of fiber loss.

Stock gates lend themselves readily to electrical operation while it would be impractical to operate a gate with pneumatic motor. A Butterfly valve, while having poor flow characteristics, can be satisfactorily operated with an air motor. The usual balanced valve or poppet type valve would be unsatisfactory when used on stock.

Controlling the Consistency

• In such an installation it is desirable to control the flow of the component having the smallest volume and hold the other component constant. If stock is being pumped at 3.0 per cent consistency to a head box and is diluted to .3 per cent it is apparent that approximately 9 times as much water must be added. Attempts to control consistency by means of controlling the dilution water have resulted in unsatisfactory control of consistency as well as large variations in the flow of controlled stock.

In the case of controlling the consistency to a riffler or flat screen head box, if the stock to the head box is 3 per cent and the controlled consistency is .3 per cent, then it is seen that for every 100 gallons of stock entering there will be 900 gallons of dilution water added to bring the consistency down to .3 per cent. The volume of controlled stock will be 1,000 gallons. If the consistency of the incoming stock drops to 2.7 per cent and the dilution water is maintained at 900 gallons, the stock gate will open up to supply more stock. Obviously the quantity of stock will be more than before and a new set of conditions will prevail which can be calculated as follows.

Let x = the quantity of stock flowing through the stock gate, then

$$2.7x = (900 + x)\ .3$$
$$2.7x = 270 + .3x$$
$$2.4x = 270$$
$$x = 112.5 \text{ gal.}$$

Thus it can be seen that while the consistency of stock flowing to the flat screens has been controlled at .3 per cent, the pounds of stock per minute to the screens has been increased. This effect manifests itself in an excessive amount of stock flowing over the ends of the screens. It is obvious that the screen tender must decrease the amount of dilution water to restore the production rate to its original value. In the case of an increase in consistency to the controller, the opposite will hold and it will be necessary for the screen tender to add water to maintain his production rate. It can be seen that while uniform consistency control is maintained, the problem of flow control is present.

The advantage in consistency control in this case is that the operator is only required to control his production rate and not the consistency.

It is apparent that the consistency control is separate from flow control but there is danger of confusing the two when a screen room operator finds himself forced to cut off or add dilution water to maintain the proper operation of the screens. Fortunately this effect is not troublesome when the controller is being supplied with stock from a chest, as changes take place slowly. However, if the level in the chest is low and stock is being withdrawn at the same rate that it is entering, the effect is quite pronounced and is often troublesome.

In the case of controlling the consistency of stock to flat screen knotters, the control of the volume flowing to the screens becomes as important as the control of consistency. This control has been accomplished by permitting the level of the head box to control the dilution water. In this manner the flow to the screens remains constant until the consistency of the stock coming from the blow pits falls below that selected as the controlled consistency. It is therefore obvious that it is up to the blow pit operator to maintain the consistency of the stock from the blow pits high enough to permit the control device to maintain the valve in a throttling range.

Control devices for this application must be of the throttling type. The so-called open and shut devices have proved unsatisfactory, because the fluctuation of the stock flow causes the screens alternately to dry up and flood over.

In the application of consistency control to the input of rotary knotters, it has been found that this type of knotter permits more leeway than flat screens in both consistency as well as flow and therefore electrical control of the stock gates has proved satisfactory where stock has been supplied to the knotter from a chest. It is the opinion of the author that consistency control for this type of knotter could be satisfactorily obtained electrically even if the stock were supplied directly from the blow pits.

The maintenance of controllers of this type is quite nominal. Photo cells must be replaced occasionally although frequency of replacement varies considerably depending upon the condition to which they are subjected. A daily check in all equipment involved in the control set up is desirable. Actual repairs will depend on the quality of materials and workmanship put into the construction and the conditions under which the equipment operates.

Norman Kelly Talks to Ohio Section of TAPPI

• W. Norman Kelly, manager, Longview mill, Pulp Division of the Weyerhaeuser Timber Company, spoke before the Ohio Section of TAPPI at the Hotel Manchester, Middletown, Ohio, on April 1st.

His subject was "The Manufacture of Sulphite Pulp." Mr. Kelly exhibited the famous Weyerhaeuser moving picture, "Trees and Men," which shows the company's logging operations, its men and their modes of living as well as brief views of the Weyerhaeuser sawmills and pulp mills on the Pacific Coast.

Rayon and other CHEMICAL USES OF WOOD PULP

Rayon Grade Sulphite Now $75 per Ton

● Late in February the price of rayon grade bleached sulphite pulp was reduced from $80 to $75 per ton, effective immediately, according to the Rayon Organon.

The new price is near its all time low level of $72.50 per ton which was in effect during the depression years and up to 1937.

New Viscose Yarn Making Good Progress

● "Vogues may come and vogues may go in the world of women's fashions, but the gals who wear 'em seem perfectly satisfied just as long as the fabrics in 'em get just a little more revealingly sheer from one spring to the next," says Business Week. "That's why the textile and garment trades prick up their ears when they hear that the American Viscose Corp.'s new Tenasco rayon yarn introduced last year, is now being woven into triple sheer type fabrics. Tenasco sheers are made 100 per cent from 50-denier 24-filament yarn; the yarn has a crepe twist and is used for both warp and filling. The cloth, which is exceedingly soft and alive, is being produced in limited quantities in both prints and plain shades for the dress trade.

"Tenasco itself is a viscose type continuous filament rayon which has been entering the market with little or no fanfare. Its high strength makes it available for cords in automobile tires; its beauty ensures its acceptance in formal evening gowns. Simultaneously Tenasco had established itself as a broadcloth of semi-dull luster for men's shirts. Tests indicate that it wears well and requires no special care in laundering. Tenasco also finds itself in twill and satin lining for men's and women's clothing; similar constructions are being used in shoe linings and football uniforms."

Rayon Yarn Deliveries Up 73% in Two Months

● Deliveries of rayon yarn for the first two months of 1939 totaled 52,800,000 pounds, a 73 per cent increase over the 30,500,000 pounds delivered during the same period of 1938, according to the Rayon Organon.

Stocks of rayon yarn held by producers totaled 39,500,000 pounds, at the end of February as compared with 39,400,000 pounds at the close of January.

The recent high prices for raw silk, resulting in a wide switch from silk to rayon in woven dress fabrics and underwear, should prove beneficial to the rayon industry over the coming months, says the Rayon Organon.

Rayon Production In Japan in 1938

● Production of rayon yarn in Japan during 1938 was reported as 199,876,300 pounds, compared with 324,749,600 in 1937, a reduction of 38 per cent largely attributable to Government control measures. The total output during the December quarter of 1938 was 39,860,700 pounds, against 78,335,500 in the last 3 months of 1937. The foregoing figures apparently refer only to the output of viscose yarns.

In addition to the amounts shown, what is described as "special size" yarn was produced to the amount of 187,900 pounds in October, 243,000 in November, and 278,300 in December; there were also released from association control 937,600 pounds in October and 827,600 in November, but apparently none in December. The grand total of production and the amounts released was 14,112,500 pounds in October, 14,160,700 in November, and 13,352,700 in December, or 41,625,900 for the quarter.

January Production Up

● Rayon production during January, 1939, totaled 15,817,900 pounds, an increase of 2,465,200 pounds over the December output. The production quota for January had been set at about 15,000,000 pounds, of which 9,000,000 pounds were for consumption in Japan and other of the so-called yen-bloc countries and 6,000,000 for export. The Fiber Distribution Committee (semiofficial) had tentatively set the production quota for Japan and the yen-bloc countries at 8,000,000 pounds for February. A quota of 30,000 cases (of 100 pounds each) of special yarn had been set for the March quarter of 1939, against 70,000 cases for the December quarter of 1938. Japan is said to have 316 mills producing rayon yarn, and the various associations apportion the yarn quotas among member mills. Available statistics do not show the number of mills belonging to each association. Production curtailment in the rayon industry is at the rate of 70 per cent of capacity.

Stocks Reduced

● Since the imposition of Government control measures in the Japanese rayon industry, rayon yarn stocks have been reduced. On June 1, 1938, stocks amounted to 56,600,000 pounds (about 2½ months' production) but by the end of 1938, they had been cut to 13,430,000 pounds, which compared with 37,740,700 a year earlier. These figures released by the Japan Rayon Producers' Association, include stocks at member mills and warehouses in Tokyo, Osaka, and Fukui. New control measures, effective on February 1, 1939, apparently are intended to prevent hoarding of yarn supplies and the transfer of quotas from one manufacturer to another as well as to provide information on all yarn transactions. The former control measures had been applied strictly and there does not seem to be any prospect of relaxation of control in the near future.

At present, rayon is said to constitute about 18 per cent of the textile fiber consumption in Japan.

1938 Exports Declined

● Exports of rayon yarn from Japan during 1938 totaled 21,984,700 pounds valued at 17,844,862 yen, a decline of 34,431,100 pounds and of 26,947,014 yen compared with the quantity and value of 1937 shipments. Exports of rayon cloth also fell off from a total of 485,098,000 square yards (154,860,000 yen) in 1937 to 337,043,000 square yards (115,704,000 yen).

Slight gains made in exports of rayon cloth during the last 3 months of 1938 probably may be attributed to official control agencies for rayon exports which have devised measures for the primary purpose of producing as much export material as possible from the limited supply of rayon pulp which may be imported into Japan. Under the existing rayon link system, restriction is put on the volume of rayon textiles, which may be held by each of the exporters and wholesalers, but no compulsory export period exists. In recent months, the Government policy has been to restrict exports of Japanese rayon textiles to the so-called yen-bloc countries.

Staple Fiber On Link System

Production of staple fiber made rapid progress in Japan as a result of Government encouragement of the development of substitutes for imported raw materials, with a view to conserving its foreign exchange supply. In June, 1938, however, producers started to limit their output by a production quota system to approximately 50 per cent of capacity, later reducing the proportion to 40 per cent, and in early 1939 prospects pointed to further restrictions on the output of staple fiber. On November 9, 1938, the various agencies (trade and governmental) decided upon a staple fiber link system which, according to Japanese press reports, provided for the importation of pulp against the export to countries outside the yen-bloc areas as follows: Import of 135 pounds of pulp against export of 100 pounds of staple fiber; 145 pounds of pulp against 100 pounds of staple fiber yarn; 160 pounds of pulp against 100 pounds of staple fiber textiles; and 145 pounds of pulp against 100 pounds of staple fiber knitted goods, towels, and sundry goods containing staple fiber. Pulp imports will be permitted after exportation of the staple fiber products.

Production of staple fiber by members of the Japan Staple Fiber Producers' Association during 1938 was reported as 327,366,000 pounds and members of the Japan Rayon Producers' Association are said to have produced 49,000,000 pounds of special staple fiber; the total Japanese production in 1938, therefore, approximated 376,366,000 pounds, compared with about 175,000,000 in 1937. In January, 1939, the output of staple fiber fell about 12 per cent below the production in December, 1938.

Pulp Imports and Stocks

• Imports of pulp for rayon and staple fiber production during 1938 totaled 255,916,000 pounds valued at 34,418,000 yen. Imports during the fourth quarter of last year were as follows: October, 3,509,173 pounds, valued at 562,372 yen; November, 3,821,082 pounds, 643,893 yen; December, 6,433,686 pounds, 1,122,367 yen. The value of such pulp imports during the middle 10 days of January, 1939, was 2,465,000 yen, according to preliminary reports.

Details by countries have not yet been received for the full year 1938, but statistics for the first 11 months of 1938 covering imports of paper and rayon pulp showed that the United States supplied 37.2 per cent of the 138,413 long tons of pulp imported during January-November 1938.

Predict More Pulp Imports

• A number of widely varying reports were released during December concerning the supply and demand position of rayon pulp in Japan for 1939, with particular emphasis on the amount required from abroad. The majority of these estimates placed the carry-over of pulp at 50,000 tons or more, whereas informed sources estimated the year-end stocks at a much smaller figure. About 58,000 tons of rayon pulp were scheduled to be imported during the first quarter of this year under permits granted late in 1938, according to the Japanese press. (Based on report from the American Consulate, Osaka, supplemented by radiograms and other reports from the Office of the American Commercial Attache, Tokyo.)

Note: The exchange value of the yen averaged $0.2845 in 1938, $0.2879 in 1937, $0.2721 in December, 1938 and $0.2720 in January, 1939.

U. S. Imported Much Staple Fiber

• In 1938 the United States imported 11,725,000 pounds of staple fiber from Great Britain as compared with 3,020,000 pounds in 1937 and 1,629,000 pounds in 1936.

The greatly increased imports in 1938 were attributed to the rapidly growing demand for staple fiber by textile manufacturers and the inability of American rayon plants to produce sufficient staple during the year. New productive capacity added during 1938 will very probably reduce the staple imports for 1939.

Buff Natwick Recovering From Flu

• A. G. "Buff" Natwick, assistant mill manager of the Crown Willamette mill at Camas, Washington, has been recovering from several weeks of illness from influenza.

Formosa Not Shipping Pulp To Japan as Yet

• With the increased demand in Japan for pulp for the paper and rayon industries and high pulp prices resulting from import restrictions on pulp in favor of the importation of war industry supplies, an increasing interest in the pulp industry has been aroused in Taiwan during this past year. However, the Taiwan pulp industry is still in its initial or experimental stage, and pulp is at present produced chiefly from sugar cane bagasse for paper manufacturing in Taiwan. No pulp has been exported as yet to Japan or other countries, and the pulp produced here at present is used for making paper and not for rayon. The Taiwan Government General Forestry Experimental Station has undertaken experiments in wood pulp production, and the Sugar Research Institute, maintained by the Taiwan Government General in Taiwan, now is building an experimental plant for the manufacture of bagasse pulp, and reportedly will begin experimental manufacture early next year.

At present one paper manufacturing company in Taiwan makes pulp from bagasse and miscanthus and recently has started to use some wood for pulp. Just this year two large companies have been established in Taiwan for the production of pulp from bagasse. Another company now is building a wood pulp plant in Taito. Mitsui interests are planning wood pulp production, and more sugar companies are likely to start bagasse pulp production. As large forest resources and its climate and soil make reforestation much faster than in Hokkaido, Karafuto, or Japan proper, it is believed that Taiwan promises to be a large future wood pulp producer.

Bagasse pulp experiments were started 20 years ago by a sugar company, and bagasse pulp production is now commercially successful. An advantage of bagasse as a raw material for pulp for paper manufacturing in Taiwan lies in the fact that its supply will be stable and permanent as long as the sugar industry exists.

Banana pulp experiments now are being conducted by the Taiwan Development Company, and if successful, banana pulp also promises to be commercially important, with a stable supply of raw material in Taiwan.

At present Taiwan is excluded from the Japanese five-year plan. However, the Taiwan Government has announced that it is prepared to contribute to the national policy in the supply of wood and pulp. Favorable growing conditions make the growth of trees in Taiwan faster than in other parts of Japan. For instance, Japanese "sugi" (cedar) planted at the Tokyo Imperial University educational forest at Taichu 27 years ago has attained a height of 84 feet and a circumference of 1 foot 1.2 inches. It also is reported that in Taiwan in altitudes between 1,000 to 1,500 meters the growth of "sugi" (cedar) is three times as fast as in Japan and five times as fast as in Hokkaido. Pine also grows more than twice as fast as in Japan Proper. Reforestation reportedly is accomplished easier than in Karafuto or Hokkaido. Taiwan has from 50 to 60 species of fast growing broad-leafed trees, which will be experimented with for pulp making. The forestry authorities state that if satisfactory, for pulping purposes one half of Taiwan's resources of these trees alone would be sufficient to meet Japan's entire annual pulp requirements. Availability of the resources is yet another question. Depending on the result of experiments large capitalists such as the Oji paper interests and the Taiwan Development Company may establish companies for reforestation of pulpwood.

Sugar cane baggase at present is the most valuable and stable raw material for pulp in Taiwan. In the 1935-1936 sugar season, sugar cane crushed in Taiwan amounted to 8,002,995 short tons, and 20 per cent, or 1,600,588 tons, of bagasse could have been available therefrom. Assuming that all of this bagasse were used for paper manufacturing, 428,728 tons of paper could have been produced, this amount being 49.0 per cent of Japan's production of 874,357 tons in 1935. The greater part of bagasse now is used as fuel in sugar mills, which would have to use coal if all bagasse were used in pulp manufacturing.

High grade paper pulp can be produced from bagasse and miscanthus combined. But since paper made from miscanthus alone is very brittle, bagasse, straw or wood pulp must be mixed with it to strengthen it.

Up to now bagasse pulp experiments have been conducted only by private firms, but with the completion in January, 1939, of the experimental factory now being constructed in Tainan by the Sugar Research Institute of the Taiwan Government General, the Government will undertake experiments.

The Forestry Department of the Central Research Institute of the Taiwan Government General started basic experiments in wood in the 1938-1939 fiscal year with an appropriation of 33,000 yen (yen equals $.2730 United States currency). From the next fiscal year (beginning on April 1, 1939) this Department plans semi-industrial experiments preliminary to commercial production. An appropriation of 200,000 yen has been requested in the budget estimates for the coming fiscal year, for equipment, buildings, and other experimental expenses. If granted, an experiment station will be built in a suburb of Taihoku. (American Consulate, Taihoku.)

Frank Frampton Moves To Cheboygan, Michigan

• Frank D. Frampton, for the past ten years vice-president of the Hopper Paper Company at Taylorville, Illinois, was recently appointed manager in charge of operations for the North American Pulp and Paper Corporation at Cheboygan, Michigan.

North American operates a three-machine paper mill, one cylinder machine and two fourdriniers, and produces around 70 tons daily of pattern tissues, books, offset, lithographs, manifold and ledger papers.

Frank D. Frampton is a brother of Charles G. Frampton, superintendent of the California Fruit Wrapping Mills at Pomona. He has been a frequent visitor to the Coast in recent years and is acquainted with a large number of operating men up and down the West Coast.

FOURTH YEAR GRADUATING CLASS . . . Left to right, sitting, C. R. RUDESILL; R. B. HAIGHT, honorable mention; CLIFFORD ODOMS, first prize winner; L. F. MAYBACH, second prize winner; EARL TUCKER . . . Standing, C. T. BEALS, L. N. SMITH, W. G. WEBB, F. E. WILLIAMS, LAURENCE WRIGHT; T. F. BUFORD, E. C. DUNCAN, O. V. OWENS, W. FRYE, WILLIAM P. LUTHY, ROY MILLER, S. E. WIGHTMAN.

Camas Paper School Graduates Record Number of Students

Total of 196 Receive Diplomas at Banquets Held on March 8th and 9th

THE largest number of students ever to graduate from the Crown Willamette Paper School at Camas, received their diplomas last month at the sixth annual graduation banquet held at Crown Willamete Inn. The group of graduates was so large, in fact, that for the first time it was necessary to hold two separate dinners.

The first year class graduated 94 students the evening of March 8, while the second, third and fourth year groups banqueted on March 9, with 102 receiving diplomas. Total enrollment in this year's school was 263, with 196 graduating. Of this number, 25 were from West Linn, six being in the second year class and 19 in the first.

The entire faculty was on hand at the two banquets to speed the school members on their way. Also present were Crown Zellerbach Corporation vice presidents Albert Bankus of San Francisco and Frank N. Youngman of Portland, as well as J. E. Hanny, Camas resident mill manager and Clarence E. Bruner, resident manager at West Linn.

Faculty members at the head table included A. G. Natwick, dean and toastmaster of the evening; F. A. Olmsted, school principal and professor of the first year class; C. A. Enghouse of West Linn, vice principal; G. H. Gallaway, professor of the second year class; J. H. Hull, professor of the third year class; R. G. Mispley, professor of the fourth year; M. K. Rawlings, secretary and registrar; B. Weidenbaum, in charge of displays, mill visits, etc.

The operating advisers and lecturer on the faculty were also in attendance, including O. T. Difieux, F. R. Sievers, E. W. G. Cooper, making his first public appearance since his illness, and H. H. Junge.

Music was provided during the festive turkey dinner by the "Bag Mill Band," composed of G. H. Gallaway, L. Tidland, L. Weiler and R. E. Lawton. W. Hart also favored the guests with several piano solos.

Following the Wednesday evening dinner, Dean Natwick introduced that smiling young man, George "Smiley" Williams, longtime Camas employee, who gave an entertaining talk on the relation of evolution to paper making, in his usual humorous style.

The speaker of the evening was Charles F. Walker of the Northwestern School of Commerce, Portland who made an inspirational address.

● He told his audience that the world today offers a challenge to youth, to meet which youth must be equipped with the proper tools. Schools such as the Crown Willamette Paper School help give the student the proper weapons with which to win in the battle of life, to free himself from the obstacles to success.

"Know the truth and the truth shall make you free," he quoted. "Find out what the truth is, what the facts are, not just opinions, and it will help you to be free, to accomplish what you desire. As truth makes us free, falsity imprisons us.

"The laws by which men succeed have been fixed for all time, and cannot be changed by act of Congress, dictators or laws of men.

"The real bankrupts in this country are not those who lack money but those who lack moral and spiritual assets, who lack courage, intelligence and ambition. Inefficiency, indolence, ignorance, etc., are the greatest parasites of the world, and they are within us, not without.

It takes work and exercise of your faculties to keep what you have and to progress. We must always be doing something constructive. And the higher you climb, the further you can see.

AT THE TOP , , , THIRD YEAR HONOR MEN, left to right, J. L. HAYS, first prize winner; ED LOWNIK, second prize winner; R. N. SODERLIND, honorable mention; L. CRAMER, honorable mention.

IN THE CENTER , , , SECOND YEAR HONOR MEN, left to right, E. J. ROAKE of the West Linn mill, honorable mention; T. L. YOKUM, honorable mention; LOWELL WEILER, first prize winner; R. B. TOBEY, honorable mention; T. E. DEAR, second prize winner.

IN THE LOWER PICTURE , , , FIRST YEAR HONOR MEN, left to right, C. H. AUSTIN of the West Linn mill, honorable mention; ED D. RICH, honorable mention; PAUL LAUDIN, first prize winner; LEAR L. SMITH, honorable mention; M. J. SCHMID, second prize winner; GEORGE O. NELSON, honorable mention.

● "When you cease to grow, you atrophy. Yet excess is always wrong and is ruinous, so in your ambition to grow, be moderate. Estimate your own ability truly and attempt what it permits. We each have our own niche to fill, and should be content if we fill our own place to the best of our ability.

"Fear undermines and destroys. Faith builds, strengthens and maintains. We must live by one or the other and your choice will determine your success or failure. Faith and confidence is a tremendous power."

Members of the management and faculty were called on by Dean Natwick for remarks, prior to the concluding feature of the evening, the presentation of diplomas and awards.

Clarence E. Bruner complimented the school members on the enthusiasm and interest displayed, and for the fine results accomplished. He expressed his pleasure at the attendance of so many of his men from West Linn, and for their opportunity to be there.

George Charters, Camas assistant mill manager, spoke of the real progress made by the school and of the benefits to be obtained by partaking of the experience of the faculty members. He also pointed out how the application of the facts learned, in solving the everyday problems in the mill, is of great value to the corporation. The use of the suggestion system is most helpful, he said, in permitting employees to participate in management.

● W. R. Barber, Crown Zellerbach technical director, who had just returned from the East, told of his pleasure at the solid and continued growth of the school, and said, "The benefits of the school include greater confidence in yourself in doing your own job, and a greater appreciation of the load of responsibility that the management carries."

Fred Olmsted, school principal, spoke of his real personal interest in the first year class, of which he is professor. He expressed the opinion that the faculty members get more than they give, despite the large amount of time required, for its help in the conduct of their own work and broadens their vision of the activities of the entire mill.

The gathering concluded with the awarding of first year diplomas, and the announcement of prize winners and honorable mentions. Paul G. Laudin of West Linn and M. J. Schmid of Camas won prizes of a year subscription each, presented by Pacific Pulp & Paper Industry. Those receiving honorable mention were Lear Smith, Ed Rich and G. Nelson of Camas, and C. H. Austin of West Linn.

March 9th Banquet

● The second graduating group, the second, third and fourth year classes, were feted at another turkey dinner on Thursday evening.

Dean Natwick read letters of regret for not being able to attend, from I. Zellerbach, J. D. Zellerbach and J. Y. Baruh, and announced that while J. E. Hanny, Camas resident manager, had hurried home from the East to be on hand, illness prevented his attendance.

"Professor" O. T. Difieux spoke for the operating advisers and lecturers, calling attention to the value of practical experience, which can in part be obtained through the mill studies made possible by the company. A graduating diploma from the fourth year class, he said, is a real recommendation in the student's work, but it is one which must be lived up to in the future.

The address of the evening was delivered by The Right Reverend Benjamin Dagwell, Bishop for the State of Oregon. He compared industry as it existed when he was young with the manner in which business is organized today, and as it is exemplified by the Crown Zellerbach Corporation. He pointed out that many useful ideas can come up to the management from the men who work in a mill, and emphasized that the company that recognizes this possibility and gives their men opportunity to develop these ideas, is a wise one.

Bishop Dagwell touched on modern employee-employer relationships, and the cases in which there is a real partnership between the two groups. He discussed the new ideas of adult education, saying that recent work showed that adults learn as easily and as well as children in the formative stage, and that a school such as that conducted at Camas can be of high value.

One fine thing about this school, he pointed out, is that it shows each student how his work is tied in with the functions of the entire plant, and how he takes a part in the operation of the whole. Education obtained in this way, by voluntary action and cooperation, instead of compulsion, is the kind that brings the greatest benefit, he said.

● Albert Bankus, vice president of Crown Zellerbach Corporation, with headquarters in San Francisco, congratulated the students on the completion of their courses, and praised the paper school and what it represents. It is, he said, "a noble experiment which has been successful." It is a voluntary effort on the part of the employees to extend their knowledge of the industry in which they work, a joint employee-employer enterprise of cooperation, with instructors from the plant itself.

The executives, Mr. Bankus said, are vitally interested in the progress of the school, and feel that its success is without parallel in the industry, for which they appreciate their employee assistance.

C. A. Enghouse, vice principal from the West Linn plant, told the graduates that as the school continues to grow, he foresees the necessity of soon having a graduation banquet for each class, four each year instead of two, as at this time. He complimented the West Linn students particularly for their work.

● The concluding speaker was Fred A. Olmsted, school principal, who said that while one of the marks of an educated man is having an open mind, it is also true that the object of having an open mind, as an open mouth, is to shut it upon something solid. That is what the paper school is helping the students to do, he said, and the result will be to improve their future business life.

The various other members of the faculty were introduced to the assembly by Mr. Natwick, together with Clarence E. Bruner, resident manager of the West Linn mill.

Diplomas to the three graduating classes were presented by Frank N. Youngman and Mr. Natwick, after which the prizes were awarded and honorable mentions announced. A week's trip through the Northwest mills was won by Clifford Odoms and Leland Maybach of the fourth year class, while R. B. Haight received honorable mention.

In the third year class, J. L. Hays was presented with Vols. III, IV and V of The Manufacture of Pulp and Paper, Ed Lownik received the subscription given by Pacific Pulp & Paper Industry, and honorable mention was awarded to R. N. Soderlind and L. Cramer.

Lowell Weiler and T. E. Dear of the second year class won the complimentary subscriptions to Pacific Pulp & Paper Industry, while honorable mention was given to E. J. Roake of West Linn, T. L. Yocum and R. B. Tobey.

As customary for the past several years, honorary degrees were bestowed by the school on several men, in recognition of many years of service and valuable contribution to the pulp and paper industry. Albert Bankus was made Doctor of Science, Clarence E. Bruner became Doctor of Philosophy in the Manufacture of Newsprint, and Fred A. Olmsted was named Doctor of Science.

First Year Graduates

● Among the First Year Class graduating from the Camas Paper School on March 8th, were nineteen from the West Linn, Oregon mill of the Crown Willamette Paper Company, Division of Crown Zellerbach Corporation.

The following graduated from the First Year Class:

H. E. Adair, J. Ashbrook, C. H. Austin, Louise (Miss) Baxter, J. Beeler, C. M. Beck, John Beck, Kenneth Bennett, Paul Bennett, H. Blaser.

F. H. Blomenkamp, K. Branstiter, J. B. Brown, Roy Brown, F. J. Bunnell, J. M. Burch, James A. Butterick, Jr., E. A. Clark, Clarence M. Cline, E. W. Crisman.

James Darby, A. E. Deschamps, Erwin Doyle, Lawrence Dungan, Merle Easton, Carl Genz, W. P. Godsil, W. P. Godsil, Jr., Leslie Golladay, Dean O. Haley.

C. W. Hansen, H. Hansen, R. Harden, W. D. Heatherington, H. F. Henning, Rex Hinmen, J. W. Holmes, W. S. Howard, Ed. Hursh, L. F. Heinl.

I. G. Johnson, L. A. Johnson, Gordon C. Kinney, David R. Kline, Donald Knapp, Spencer Lantz, Paul G. Laudin, R. E. Lawton, Robert R. Lehr, A. J. Lethlean.

John LeTourneux, A. R. Lindsley, H. B. Little, Wm. Little, Odie Lytsell, Ron. Malcolm, Dale Merryfield, Charles Meyer, Jr., P. Middlebrook.

L. Monaghan, George O. Nelson, Douglas Olds, E. T. Parker, Jr., C. E. Parr, O. J. Perrault, Louis Pierson, B. Pope.

Ralph K. Pratt, S. M. Purdy, Glenn W. Quail, K. Renner, Edward D. Rich, G. M .Richards, H. L. Roley, Walter Roppell.

C. Sawyer, Otto Scherpf, M. J. Schmid, Harlyn Scobba, Leon E. Semke, L. G. Skarr, Lear L. Smith, E. D. Simpson, G. A. Tennety, George O. Thomas, L. S. Thompson.

Fritz Tietz, Charles V. Ward, Louis Webberly, M. A. Wilson, Don G. Wilson, E. C. Wolmutt, George Wright, Herbert Wymore.

Second Year Graduates

● Of the following who graduated from the Second Year Class, six are from West Linn:

Howard J. Anderson, C. Aslin, A. T. Ast, Richard Baldwin, Jack Batzer, Rex Brown, R. P. Cochrane, E. C. Cooley, Ronald Cory, Rod M. Crosby.

R. W. Cullum, Willian M. Daly, R. D. Day, T. E. Dear, Selvy DeWeese, A. Evanger, William Fritz, John H. Gregory, J. F. Grace, D. E. Hallock.

Howard Hammond, W. Hart, D. R. Hewitt, H. O. Hinze, Ingman Holm, Lloyd O. Hutchison, Arnold Hirsekorn, R. S. Josephson, Joyce Kendall, B. H. Lindquist.

Don Lucas, K. E. Locke, Jack M. Miller, M. A. Newkirk, Keith R. Owen, W. J. Perrault, Donald Persons, R. L. Prentice, Harold Quick, Carl E. Rohrer.

E. J. Roake, R. Roppel, G. H. Rundquist, C. E. Sawyer, W. O. Shadel, Ralph Sievers, H. E. Stenehjem, Chauncey L. Storms, Ralph Strickler, R. B. Tobey.

L. D. Voss, Lowell C. Weiler, Roy L. Wohlsein, T. L. Yocum.

Third Year Graduates

• The twenty-nine students graduating from the Third Year Class, were:

Harry F. Beauregard, Henry Brown, G. Carpenter, David J. Clark, Elmer Clark, Frederick Covell, Luther W. Cramer, H. W. Dassel, W. B. Dobbs, M. A. Edwards.

J. L. Hays, Keith Hill, Virgil Hughes, J. B. Knight, Jr., Edward Lownik, Dorsey E. Lowther, J. S. Mears, Raymond F. Miller, Walter Rains.

Orton L. Rondeou, Gerald Schmidt, Reynold N. Soderlind, J. Turlington, E. D. Vickers, E. H. Vogt, Ray E. Wadsworth, W. E. Wegner, C. B. Wise, C. B. Christiansen.

The CAMAS PAPER SCHOOL FACULTY ' ' ' Sitting, left to right, C. A. ENGHOUSE of West Linn, vice-principal; A. G. NATWICK, dean; F. A. OLMSTED, principal and professor of the first year class ' ' ' Standing, left to right, E. W. G. COOPER, adviser and lecturer; R. G. MISPLEY, professor of the fourth year class; J. H. HULL, professor of the third year class; MILLARD RAWLINGS, secretary and registrar; H. G. GALLAWAY, professor of the second year class; F. R. SIEVERS, O. T. DEFIEUX and H. H. JUNGE, advisers and lecturers.

BELOW ' ' ' CROWN ZELLERBACH Vice-Presidents FRANK N. YOUNGMAN of Portland and ALBERT BANKUS of San Francisco with CLARENCE E. BRUNER, Resident Manager of the West Linn, Oregon, mill of the Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, at the right.

Fourth Year Graduates

● Eighteen students completed the Fourth Year Class work and received diplomas. They were:

Chester Beals, Thomas F. Buford, Carlton Duncan, Howard J. Ells, W. Frye, R. B. Haight, William P. Luthy, Leland F. Maybach, Roy R. Miller.

Clifford Odoms, O. V. Owens, C. R. Rudesill, L. N. Smith, Earl Tucker, W. G. Webb, S. E. Wightman, Forrest E. Williams, Laurence Wright.

Guests

● The following were guests of the Camas mill at the two graduation banquets, March 8th and 9th, including faculty, foremen, executives, speakers and others:

● **Charles F. Walker, G. W. Charters, A. G. Natwick, F. A. Olmsted, C. A. Enghouse, O. T. DeFieux.**

E. W. G. Cooper, F. R. Sievers, H. H. Junge, R. G. Mispley, J. H. Hull, G. H. Gallaway, B. Weidenbaum.

M. K. Rawlings, W. R. Barber, M. Bona, C. E. Bruner, J. Brown, M. J. Otis, A. W. Olson, J. F. Robertson, W. E. Lambert.

L. Burnett, Otto Michaelis, D. Olds, Miss C. Kropp, Miss E. Santee, Mrs. L. Blair, J. Harris, Geo. Williams.

J. M. Tedford, L. Weiler, L. Tidland, W. Hart, Ravmond Hatch, L. D. McGlothlin, E. Webberly, H. E. Ostenson, C. Knapp, J. L. Shively, W. G. Goodwin, T. R. Martin.

T. R. Goodwin, W. Hart (not same one as above), H. M. Green, H. K. Roberts, W. Harms, C. Smith, J. Gigler.

● **Bishop Dagwell, F. N. Youngman, A. Bankus, G. M. Julien, R. E. Lawton, E. P. Stamm, F .F. Sullivan, H. Glenn, J. Savage, Wm. Marshall.**

Gus Ostenson, Gus Lorenz, H. N. Simpson, L. Supove, H. F. Burgess, Harry Richmond, Jan Haugerod, Charles Quentel, W. W. King, George Bailey, E. S. Turner, R. H. Mills, P. V. Millard, J. Grieve, F. Stevey.

Superintendents Announce Special Rail Rates to Convention

● In a convention bulletin issued by the central office of the American Pulp & Paper Mill Superintendents Association it is announced that special rates have been obtained for West Coast members who plan to attend the annual convention in Washington, D. C., June 13-15th.

"The round trip first class fare in effect from North Pacific Coast Common points to Washington, D. C., is $136.15 and from California common points $133.90 via authorized southern routes via New Orleans in one direction and a direct route in reverse direction, also via authorized routes in both directions.

"Mixed class fare $119.85 North Coast and $118.40 from California on tickets good in Tourist Sleepers west of Chicago and on standard sleeping cars east of Chicago, plus Pullman fares.

"Fares to New York via Washington are first class $135.00 for all accommodations, first class $131.60 for upper berth only east of Chicago. Mixed class $119.85 Tourist west of Chicago and Standard upper berth east only. Stopover and tickets limited to three months and require validation at San Francisco and New York.

"Consult your railroad ticket and passenger agent for more detailed information from other points as to round trip ticket fares to New York via Washington if you desire to see the World's Fair."

Superintendents Issue Partial Program of Meeting

● A partial list of the papers to be presented at the annual convention of the American Pulp & Paper Mill Superintendents Association, which is to be held at the Wardman Park Hotel in Washingtonn, D. C., June 13-15th, follows:

COATING PAPERS—"A Few Facts About Coating," by Frank W. Egan of the John Waldron Corporation. "Machine Coating Processes," by Peter J. Massey of the Combined Locks Paper Company.

BOARD—"Selective Screening Relative to Stock Preparation," by Arno W. Nickerson, consulting engineer.

FINISHING, STORING AND SHIPPING—"Control of Humidification of Finishing, Storage and Print Room," by a speaker to be announced later. "Shipping Paper Safely to Customer," by a speaker to be announced.

NEWSPRINT AND WRAPPING—A follow-up paper on "Operation of the Hydrafiner," which was given at the Toronto convention last year by J. D. Haskell of the Dilts Machine Works. "Beater Room Control and Instrumentation," by Arthur B. Green of Needham, Mass.

CHEMICAL PULP—"Control Instruments in a Modern Pulp Mill," by C. D. DeMers of the Taylor Instrument Company. "A Review of European and American Bleaching Practices," by T. W. Toovey of the Pennsylvania Salt Manufacturing Company of Philadelphia.

President Leroy Zellers has named the following men chairmen for the Washington, D. C., convention: Arrangements, W. M. Shoemaker of the National Vulcanized Fibre Company; Program, A. G. Stone, Southern Kraft Corporation, York Haven, Pennsylvania; Golf, L. D. Nicholson of the District of Columbia Paper Manufacturing Company who will be assisted by Frank B. Eilers of the Orr Felt & Blanket Company and Buster Griffith of Kalamazoo; Music and Entertainment, Francis D. Bowman of the Carborundum Company, Niagara Falls.

The following group meetings will be held: Chemical Pulp; Newsprint and Wrapping; Board; Fine and Coated Papers; Tissue; Plant and Power Engineers; Finishing, Storing and Shipping.

In addition to the scheduled meetings the following special trips are planned:

● On Wednesday, June 14th, busses will leave the hotel about 1:00 o'clock and go directly to the Government Printing Office. A two-hour trip through this huge plant will include visits to rooms not usually included in ordinary tours. This office does $60,000 worth of printing daily, 6,000,000 post cards are printed daily, 75,000,000 tax blanks were printed here for 1939. It handles 15 carloads of paper daily and pays $6,000,000 for paper per year. A very worthwhile visit.

Following the visit to the Government Printing Office, busses will take you directly to the Federal Bureau of Investigation. Special invitation from J. Edgar Hoover. There you will see how paper is used in the identification of criminals. Records of nearly 10 million individuals are on file at this bureau. See how experts establish the identity of a criminal in 5 minutes. A record of watermarks is here. Paper used for extortion letters is carefully tested. Don't miss this trip.

Special invitations have been received for members of our group to visit the following: Coast and Geodetic Survey (Offset Printing), Bureau of Engraving and Printing (where money and stamps are made), Bureau of Standards.

Spaulding Mill Now Operating

● The Spaulding Pulp & Paper Co. mill at Newberg, Oregon, shut down during the month of March, was expected to renew production about April 10.

The company has laid plans for a reorganization, but at the time of writing the details had not been completed.

Weidenbaum Back From Ocean Falls

● B. W. Weidenbaum, newsprint chemist of the central research laboratory of the Crown Zellerbach Corporation at Camas, Washington, returned recently from Ocean Falls, B. C., where he spent two weeks consulting with the staff at Pacific Mills, Ltd.

Inland Empire Buys New Cameron Winder

● The Inland Empire Paper Company of Millwood, Washington, early this month ordered an 83-inch Cameron winder from the Pacific Coast Supply Company of Portland, representatives on the West Coast for the Cameron Machine Company of Brooklyn, New York, manufacturers of winders and rewinders.

Fight Paper Bottles In Vancouver

● The Vancouver, B. C., trades and labor council has filed an objection with the city council against authorization of waxed paper milk bottles.

The council claimed that it had no complaint against the paper bottles in themselves, but held that their use would result in throwing many bottle washers and other labor out of employment.

●

THE PARABLE OF THE TWO FROGS

N. H. Leander of the Swedish Pulp Agency, Limited, London, concluded a recent summary of the wood pulp situation with this statement:

"I shall not venture on a forecast of the future. But for the benefit of the pessimist I would give the illustration of the two frogs who found themselves in a basin of cream from which there was no escape. The pessimist threw up the sponge and was drowned, the optimist plodded along until he had churned the cream into butter and he then found himself on the top of the world again."

—From "The World's Paper Trade Review," London.

Various Percentages and Beating of Sulphite Pulp In Mixtures With Groundwood Pulp for Newsprint

by JOHN HOWARTH BARDSLEY*

Abstracts

● **The effect of varying the percentage of sulphite and the degree of beating of the sulphite slush in pulp to be used for news was studied. Tests and study were made of the Mullen pop, tear factor, bulk, wet pop, and freeness, under various percentages of sulphite and various degrees of beating of the sulphite. The results showed that as the percentage of unbeaten sulphite increased, the freeness, Mullen pop, tear, and wet pop all increased, but the bulk decreased. As the degree of beating as under conditions in question increased, the Mullen pop, the wet pop at constant moisture content, and percentage of water in the wet sheet at constant pressing increased; but the tear, freeness, bulk, and the actual wet pop strength decreased. Most significant was the Mullen pop and the percent of water in the sheet. The work indicated that under the conditions of the test, beating of the sulphite slush would not be of advantage in the manufacture of newsprint.**

Object

● As you know, newsprint is made from a mixture of sulphite and groundwood pulps, the mixture containing ten to fifteen percent sulphite. The sulphite is far more costly than the groundwood and so any permissible reductioin in quantity is a direct saving. With this in mind, it was felt that some beating of the sulphite before it was mixed with the groundwood might result in a furnish that was of higher quality and strength than the usual mixture. In this way the percentage of sulphite might be reduced to such an extent that beating would be economical, if at the same time the quality did not fall off.

Method

● In this experiment all work was done on the "Date" sheet machine under procedure as similar to the British Standard Sheet Machine method as possible. The sheets were made at 50 lb. ream wt. on a basis of 500s, 25 inches by 40 inches, and were tested at 65 per cent relative humidity and 70 degrees Fahrenheit. Average news grade sulphite and average groundwood were the stocks from which the mixtures were made up. The sulphite was divided up and part was left unbeaten, part beaten for 45 minutes and part beaten for 90 minutes in the Abbe pebble mill. Unfortunately an experimental beater was not available at the time of the work. The mixtures were then made up at 100 per cent groundwood, 7 per cent, 14 per cent, 21 per cent and 100 per cent of each of the three sulphites. The tests done were as stated earlier, Mullen pop, Elmendorf tear factor, bulk number, freeness and per cent wet pop.

Per Cent Mullen Pop

● Test sheets were made of each of the mixtures and tested for Mullen pop strength. The value per cent Mullen pop was used in the calculations and this was derived from:

$$\text{Per cent Mullen Pop} = \frac{\text{Pop (lb. per square inch)}}{\text{Ream weight (500s, 25"x40")}} \times 100$$

The original sulphite had an initial Mullen of 64.0 per cent and was raised to 85.6 per cent and 98.7 per cent by 45 and 90 minutes beating respectively. From previous experience with the pebble mill, 90 minutes of beating was enough to parchmentize the sulphite. The results were well in line and showed that as the per cent sulphite increased, so did the Mullen strength. Also as the amount of beating increased, at least up to maximum strength of the sulphite, so did the strength of the mixtures increase. The relationship is not a straight line, the more the beating, the less the increase in strength is shown in the mixtures. In other words one does not reap the full amount of benefit from the beaten strength. In regards to the Mullen pop, interpolation of the curves shows that instead of 20 per cent sulphite used in a news furnish 16.5 per cent of 45 minute beaten stock or 15 per cent of 90 minute beaten stock would give the same Mullen pop. This is equivalent to a cut of 17.5 per cent in the case of the 45 minute beaten and 25 per cent in the case of the 90 minute beaten sulphite.

Considering the Mullen pop in the finished sheet alone, beating of sulphite would allow a considerable reduction in the per cent sulphite and still keep the strength up. Whether the necessary beating would be economical is a question depending upon beating costs.

Tear Factor

● As was the case of the Mullen pop, the test sheets were made of 50 lb. ream wt. 500s, 25 inches by 40 inches. The sheets were tested in the regular Elmendorf tearing procedure. Sixteen sheets were torn at one time and the tear factor was calculated from the equation:

$$\text{Tear Factor} = \frac{71.1 \times \text{(force in gms required tear 1 sheet)}}{\text{Ream Weight (500s, 25"x40"}}$$

The tear factor for groundwood was 46.5, the value for unbeaten sulphite was 113.0 which decreased to 81.4 and 68.4 for 45 minute and 90 minute beating respectively.

The relationship between the per cent sulphite and the tear factor is not a straight line. In fact the curves indicate that the tear factor reaches a maximum at about 60 per cent sulphite. The values obtained for the various mixtures were much higher than would be expected from a straight average.

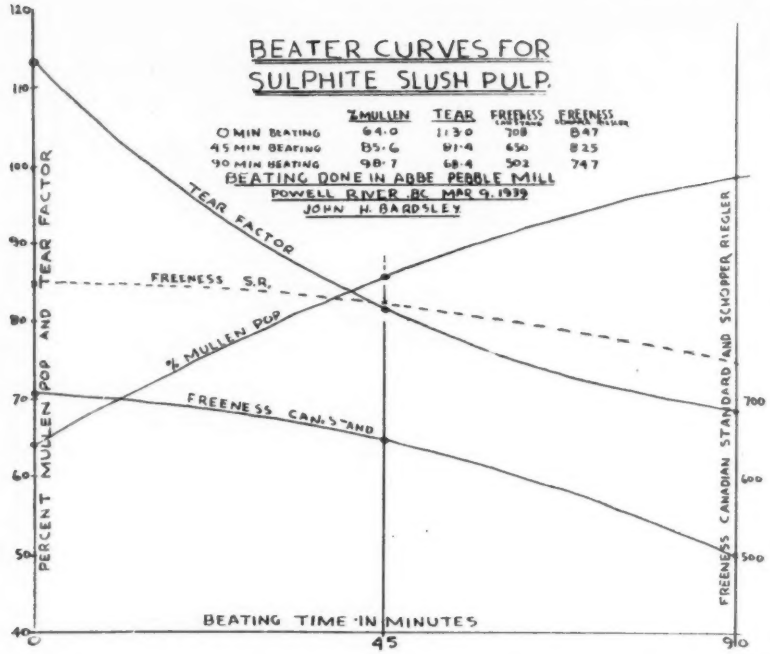
In the case of the Mullen pop, beating of the pulp noticeably increases in value, but the tear factor decreases, although to a smaller amount. The curves indicate that 21 per cent of 90 minute or 17 per cent of 45 minute beaten sulphite would be necessary to give the same tear strength as 15 per cent of unbeaten sulphite. This would mean increases of 40 per cent and 13.3 per cent respectively.

From the standpoint of tear it is demonstrated that beating the sulphite would seem to be undesirable in the manufacture of news. Over the range used in news, increasing the per cent sulphite does produce a higher tear factor.

Bulk Number

● In the manufacture of newsprint the bulk of the paper is considered an important factor. For a given condition in the manufacture of

*Chemical Engineer, Technical Department Powell River Company, Limited, Powell River, British Columbia. Presented at the Dinner Meeting sponsored by the Pacific Section of TAPPI, Camas, Washington, April 4th, 1939.



news it has been found that the bulk is, to some extent, related to the softness and surface smoothness. Bulk is definitely linked up with printing quality. It is general practice to endeavor to attain the optimum position between bulk and smoothness.

The bulk number is just a method of measuring the thickness and then bringing it to a common base. We determine it by measuring the thickness in thousandths of an inch, then multiplying by 10^6 and dividing by the ream weight, 500s 25 inches by 40 inches.

Bulk Number =

$$\frac{\text{Thickness (in 1/1000s of an inch)} \times 10^6}{\text{Ream Weight (500s, 25"x40")}}$$

The test sheets were made at 50 lb. ream, the same way as the pop and tear sheets.

The values varied over a large range. Groundwood was 134, normal sulphite 81.6, 45 minute beaten 73.8, and 90 minute beaten 67.8.

From examination of the graphs it is seen there is practically a straight line relationship between the bulk and the per cent sulphite. The bulk varies inversely but not in direct proportion to the per cent sulphite. The bulk also varies inversely with the amount of beating of the sulphite, though this is not in a straight line relationship.

From the preceding discussion and reference to the graphs, it may be seen that any increase in the beating or in the per cent of the sulphite produces decrease in the bulk of the sheet, and so tends to harm the printing quality.

From the foregoing it is evident that beating or increasing the sulphite would have a detrimental effect on the printing quality of the news, and from this point of view would not seem to be desirable.

Per Cent Wet Pop

● Wet strength is required at the wet end of a paper machine for efficient operatiion.

With this in view, a method of testing the wet strength was devised. Although this method is by no means perfect, it apparently gives results which agree, to some extent, with operating experience. The development and use of the wet strength tester might be the subject of a separate paper, but that is beside the field of this investigation. It is probably sufficient to say that the wet strength is determined by measuring the vacuum necessary to break the wet sheet when clamped in a Mullen tester. Test sheets are made in the ordinary procedure but are only pressed once. They are about 30 per cent bone dry when they are popped.

In evaluating the results, two different bases should be used: one, the pop of the sheets at the bone dry content that they are after standard pressing (a wetter sheet of course being weaker), and the other the wet pop corrected to that at constant dryness by means of an empirical correction for the water content. Results have been evaluated to both bases.

The per cent wet pop was calculated in a similar manner to the ordinary Mullen pop.

Per cent wet pop =

$$\frac{\text{Lb. per sq. inch}}{\text{Ream Wt. (A.D.)}} \times 100$$

$$=$$

$$\frac{0.433 \times \text{Vacuum (In. of Water)}}{\text{Ream Weight (Bone Dry)}} \times 100$$

$$0.9$$

The per cent wet pop varied from 1.405 for groundwood to 1.955 for 21 per cent ordinary sulphite, 1.873 for 21 per cent 90 minute beating, and 1.865 for 21 per cent of 45 minute beating.

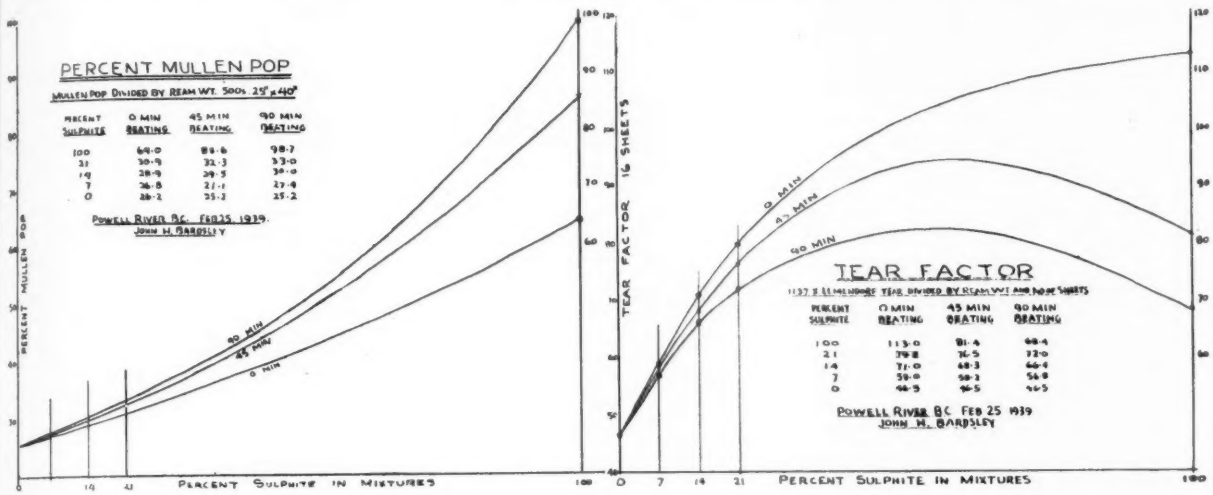
Examination of the results showed that: As the degree of beating increased, so did the amount of water held by the sheet after pressing. This is an important observation because it indicates that with beating of the sulphite there would be a higher water content at the couch and after the presses on the paper machine, for the same vacuum and press effects, resulting in the possibility of more steam being required in the driers, with more wet end breaks and probably consequently a higher cost for the production. Examination of the results uncorrected for bone dry content also showed that mixtures of unbeaten sulphite were stronger than mixtures with beaten sulphite, also that the strengths were not in proportion to the amount of beating. That is, the 90 minute beaten was stronger than the 45 minute beaten. However, when these figures are corrected to a constant bone dry content, say 30 per cent B.D. we iron out the above abnormality and we find that the wet strength follows the dry Mullen pop very closely. That is, the more the beating or the higher the per cent of the sulphite, the higher the wet strength. Another important observation was that small variations in the per cent sulphite affected the wet strength more markedly than the dry strength, but the effect of beating affected the wet less than the dry. Using the empirical correction does not give results as aligned as could be wished for, but they were sufficiently pronounced to state the above with some certainty.

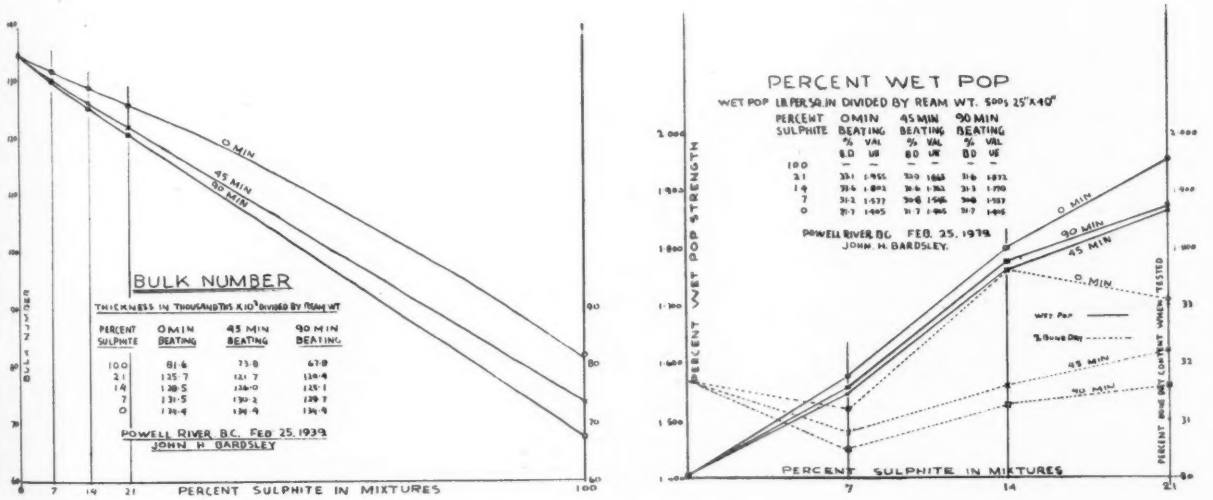
Although the correction gives results that agree with the dry Mullen

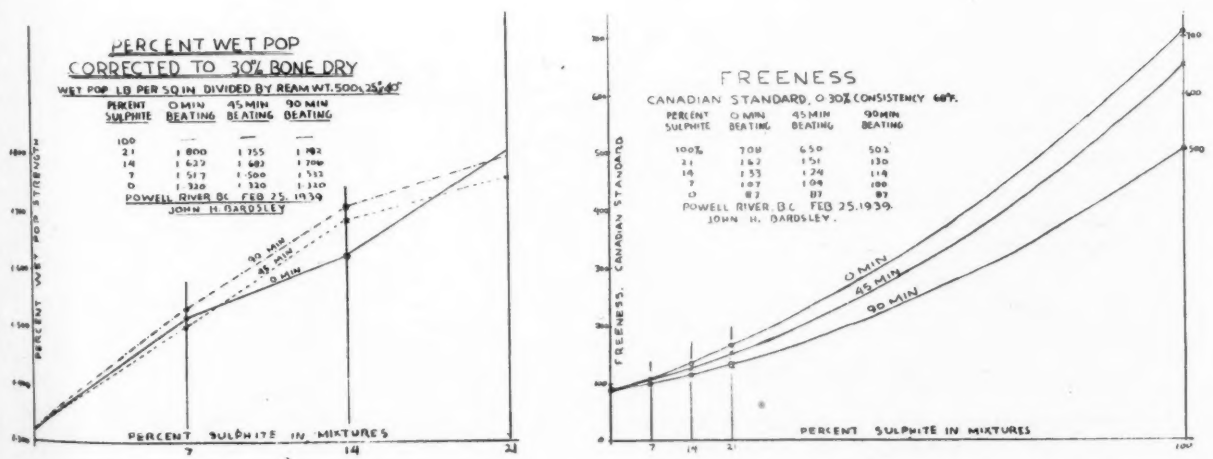
pop, the uncorrected results give the relationship under the actual working conditions. If a sheet is weaker due to the presence of water, it is actually weaker in the operating condition.

Over the range studied, the wet pop increases almost linearally with the per cent sulphite. This applies both to the uncorrected and corrected results.

From the foregoing it may be seen that the beating of the sulphite for news causes the sheet to remain wetter and so will probably







increase the cost of drying. Also this wetter condition of the sheet more than offsets any increase in the wet pop due to beating of the sulphite.

Freeness

● All freenesses were done according to the Canadian Standard procedure. This was using the standard apparatus with pulp at a consistency of 0.30 per cent and a temperature of 68 degrees Fahrenheit.

The values ran from groundwood with a value of 87 to unbeaten sulphite at 708, 45 minute beaten at 650, and 90 minute beaten at 502.

The freeness decreases as the per cent sulphite decreases, and also as the amount of beating increases. Although a freeness of about 120 to 135 is usually used on a fourdrinier, it is thought that the decrease in freeness due to beating of the sulphite is not sufficient to prevent the mixed stocks from running on the machine.

From the curves it may be seen that although beating the sulphite may not cause insurmountable difficulties with the freeness, nevertheless it certainly does not help the condition.

Conclusion

● Mixtures containing various percentages of slush sulphite, having various degrees of beating have been made up into test sheets and have been tested for Mullen pop, tear factor, bulk, wet pop, and freeness.

The results showed that under the type of beating of the test, beating of the sulphite slush produced a marked increase in the dry Mullen pop, but all other factors were depreciated, dryness to an appreciable amount, bulk, tear and wet pop to a minor extent.

On the whole beating of sulphite slush, under the type of beating occasioned, would not seem to be of advantage in the manufacture of news. Reduction in the sulphite through this beating does not seem to offer advantage from a quality standpoint, and would probably be detrimental to the efficiency.

Olsen In East On Business

● B. A. Olsen, general manager, California Cotton Mills, Oakland, Calif., left his office for an extended trip East last month.

Various Percentages and Beating of Sulphite Pulp In Mixtures With Groundwood Pulp for Newsprint

	Per cent Sulphite	0 Min. Beating			45 Min. Beating			90 Min. Beating
Freeness	100	708			650			502
	21	162			151			130
	14	133			124			114
	7	107			104			100
	0	87			87			87
Mullen Pop	100	64.0			85.6			98.7
	21	30.9			32.3			33.0
	14	28.9			29.5			30.0
	7	26.8			27.1			27.4
	0	25.2			25.2			25.2
Tear Factor	100	113.0			81.4			68.4
	21	79.8			76.5			72.0
	14	71.0			68.3			66.4
	7	59.0			58.2			56.8
	0	46.5			46.5			46.5
		At 30% B.D.	% B.D.	Test	At 30% B.D.	% B.D.	Test	At 30% B.D.
Wet Pop	100	---	---		---	---		---
	21	1.800	32.2	1.865	1.755	31.6	1.872	1.792
	14	1.622	31.6	1.762	1.682	31.3	1.770	1.705
	7	1.517	30.8	1.546	1.500	30.5	1.557	1.532
	0	1.320	31.7	1.405	1.320	31.7	1.405	1.320
Bulk Number	100	81.6			73.8			67.8
	21	125.7			121.7			120.4
	14	128.5			126.0			125.1
	7	131.5			130.2			129.7
	0	134.4			134.4			134.4

Freeness — Canadian Standard — 0.30% Consistency, 68° F.

% Mullen Pop — $\frac{\text{Pop (lb. per sq. in.)}}{\text{Ream Weight (500s, 25"x40")}} \times 100$

Tear Factor — $\frac{71.1 \times \text{(force in gms required to tear 1 sheet)}}{\text{Ream Wt. (500, 25"x40")}}$

% Wet Pop — $\frac{\text{Pop (lb. per sq. in.)}}{\text{Ream Weight (A. D.)}} \times 100$

Bulk Number — $\frac{\text{Thickness (thousandths of an inches)} \times 10^6}{\text{Ream Weight (500s, 25"x40")}}$

Experimenting With Imperial Valley Flax for Paper

● With the discovery that flax thrives in the fertile Imperial Valley of Southern California, this crop has grown to a 40,000 acre annual crop with promise of increase, and presents a development of interest to the paper industry.

In 1937 the California Central Fibre Corporation, fully owned subsidiary of the Champagne Paper Corporation of New York City, launched its scutching plant at El Centro, California for converting flax straw to fiber which is being shipped to North Carolina for experiments in paper manufacture. The Ecusta Paper Corporation of North Carlonia is conducting this research. It is believed fine quality paper can be eventually produced from this California flax fiber.

The scutching plant went into its first production in March, 1938. It was built to handle 50 tons of straw per day. According to Wade H. Ramsey, Jr., vice-president of the firm, flax straw is purchased from Imperial Valley growers through an exclusive contract with the Southwest Flaxseed Association. The principal requirement for the straw used is that the straw must be reasonably free from weeds and must not be too badly broken in the seed thrashing operation.

Karl Kaiser of the company's plant at Blue Earth, Minnesota, is the engineer in charge of the operations at El Centro.

Prior to 1937 there was no outlet for Imperial Valley flax straw and practically all of it was burned. Flax was first planted in the Imperial Valley in 1926. At the beginning only experimental acreage was planted to test the feasibility of growing flax in the area as it had been reported flax was giving good yields across the border in Mexico.

● L. G. Goar carried on the first experiments and by 1929 had determined that Punjab and Argentine flax were the best varieties for the conditions in the Imperial Valley. In 1933 the first widespread commercial plantings were reported and by 1935 some 11,000 acres were planted in flax. The following year the acreage rose to 22,000 but declined in 1937 to 14,000. However, in 1938 the plantings rose to 50,000 acres and the crop from this area will be harvested in May and June this year.

Nash Engineering Agent Taken By Death

● Paul W. Schubert of Seattle, Western Washington representative of the Nash Engineering Company of South Norwalk, Connecticut, died at his home on April 6th after an illness of several months. As agent for Nash Engineering Mr. Schubert had sold a large number of vacuum pumps to the pulp and paper mills during the years he served the company.

Mr. Schubert was also a construction engineer and his thirty-two years' residence in Seattle had taken part in the building of a large number of industrial plants throughout the Northwest.

He was a member of Arcana Lodge No. 87, of the F. and A. M., the Nile Temple of the Shrine and the Scottish Rite. He was a past captain of the Nile Temple Patrol.

Surviving him are the widow, Laura, and a daughter, Mrs. Guy E. Stevens of Seattle; a son, William Schubert, Los Angeles; two brothers, Louis Schubert, Indianapolis, and Charles T. Schubert of Memphis, Tennessee.

A New Method of Pulp Testing Control—The Morden Tester

by CLAUD CHRISTIANSEN*

FOR several years the Camas mill made particular effort to find a pulp testing apparatus that would be an improvement in the equipment used for routine testing and evaluation of pulps going direstly to the beater room and paper machines. The ball mill method long used under undesirable characteristics for this purpose; time consumed making the test and, until the results could be reported, was generally prolonged past their value in control of stock to the paper machines; generally the pulp was on the machine by that time. Then again, the development given the pulp by the ball mill was essentially different from that of the beaters and jordans in making Camas mill wrapping and specialty grades where emphasis is put upon jordan treatment rather than prolonged beating. Consequently pulp test data did not correlate well with, nor from them could be properly interpreted, the tests on the paper from the machine. Mr. C. W. Morden of Morden Machines Company had some five years ago built a small testing-size unit duplicating the full-size Morden Stock Maker, in its mechanical principles. This laboratory unit was tried out over a period of time without definite evidence of its applicability to pulp testing. The Camas mill finally got hold of it and by persistent effort of several months completed a perfection of it, and about two years ago was able to put it into routine use on unbleached and bleached sulphite pulps for testing control between the pulp mills and the beater room. The Morden Tester has been a decided success and we ourselves now regard it as a very worthwhile means of rapid and accurate pulp testing control. At the present time Camas mill has the only unit of it in use strictly in testing pulps for making paper.

Faster Testing

● The principal advantage of the Morden Tester is speed. Tests are reported in less than one hour after sampling. The total time of treatment in the Morden Tester (including mixing, beating and sampling) is 5½ minutes as compared to 55 minutes in the ball mill and 70 minutes in the 1½-lb. tub type beater. The reduced treating time not only speeds the reporting of tests but also permits the reduction of testing equipment where the number of samples tested require the use of more than one unit of testing equipment. At Camas, the Morden Tester has displaced four ball mill units, which were previously required. The use of one unit also eliminates the problem of keeping several testing units producing the same kind of beating action. This is especially difficult with ball mills due to wear on the pebbles, jars, and lids. Another advantage is the closer relationship of the development effect on the fibre to that which the pulp actually receives in the (Camas) paper mill. The treatment in the Morden Tester is similar to mill refiners in that the pulp is passed between moving bars set close together. This, of course, is not true of pulp testing equipment which exert a crushing and grinding effect on the pulp as in the case of ball mills. This closer relationship of pulp testing to mill treatment has been borne out by the closer correlation of pulp tests to paper tests than was formerly obtained using ball mills.

Description of the Morden Laboratory Stock-Maker

● Photograph Figure 1 and flow diagram Figure 2 show the Morden Tester as supplied by the manufacturer before the addition of the electric control, the essential feature of its final perfection which developed at Camas. In the flow diagram certain details are omitted, such as the bottom thrust bearing for controlling the setting of the rotor, as this is not used as the machine is operated at Camas. The relation of certain machine elements are also altered slightly in order to illustrate more clearly the operation and the flow course of the pulp during its recirculating treatment.

The Morden Tester is a vertical machine, of which the lower portion is the all bronze treating section and the upper portion a built-in vertical type motor, which drives the tester's rotor. In the treating section the beating elements consist of a conical shaped rotor with integral bar type treating surfaces on its outer face and an internal bed plate shell surrounding this rotor with integral bar type treating surfaces on its inner face. The arrangement of these beating elements is indicated in the quarter section view, Figure 2, which also shows the closed type impeller "B" above the rotor, which recirculates the pulp during treatment. The course of this circulation is indicated by the arrows, the pulp being first forced by the impeller through the treating element from its large diameter toward its small diameter end and thence to the top of the charging hopper "D" on the side of the machine, and then back on a spiral course through this hopper to the intake of the impeller in readiness to again be delivered by it to the treating elements, as already described.

The Morden Tester motor is a 2 horsepower, 1800 r.p.m., vertical type hollow shaft motor, built in as a unit with the tester. The hollow shaft of this motor permits extending the rotor shaft through the hollow motor shaft, from which it is driven by means of a jaw clutch. This construction permits the rotor shaft to be raised up and down inside the hollow motor shaft as the

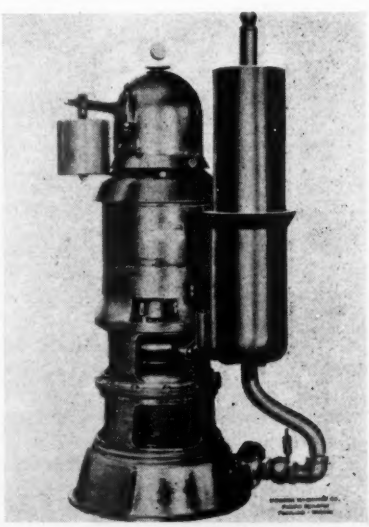


Figure 1, Morden Pulp Tester as supplied by manufacturer.

*Technical Department, Camas Mill, Crown Willamette Paper Company, Division of Crown Zellerbach Corporation. Presented at the Dinner Meeting sponsored by the Pacific Section of TAPPI, Camas, Washington, April 4th, 1939.

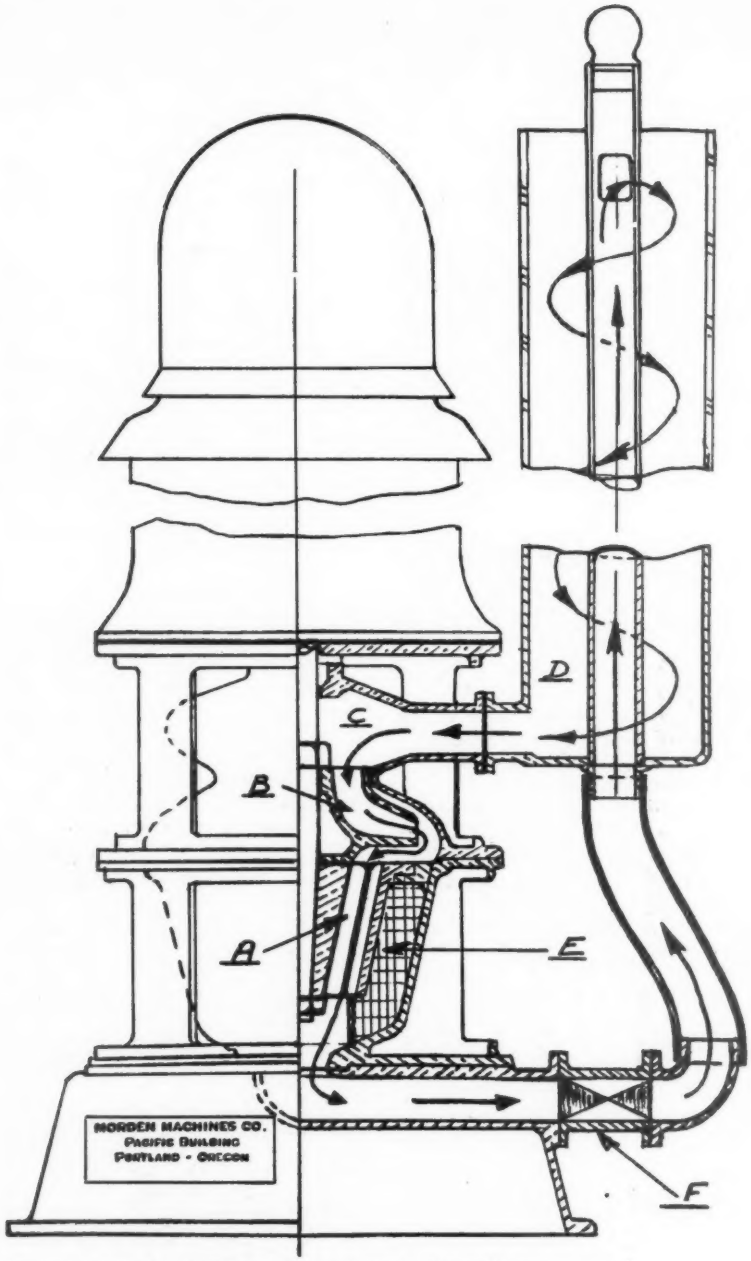


Figure 2, Sketch showing flow of stock through tester.

rotor is raised or lowered to control the amount of beating work done. The upper end of the rotor shaft, which extends above the upper end of the motor shaft is equipped with a ball thrust bearing through which the rotor shaft is connected to the weight lever shown in the photograph Figure 1. The construction is such that when this lever is raised or lowered, the rotor is correspondingly moved. As operated at Camas, this weight lever, instead of being weighted as shown in photograph Figure 1, is connected to a motor operated screw mechanism, driven by a small reversing type motor, which in turn is controlled by suitable relays connected in a circuit from the contacts of a contact-making wattmeter, which wattmeter is connected in the power circuit to the tester's driving motor. This control was developed and built at Camas and its effect is to maintain a constant power input to the tester during its treatment of a batch of pulp; this being accomplished through this control by automatically lowering or raising the rotor, depending on whether more or less load is required. Figure 3 and 4 show the tester as set up at Camas with the load controller. Figure 5 shows the panel board from which the Tester is operated and Figure 6 shows the wiring diagram with the instruments in their relative positions as on the panel board.

This modification in the way of controlling the rotor setting differs from that provided in the machine as supplied by the manufacturer, which accomplished this control hydraulically. This hydraulic control, in effect, provides a floating rotor, the down setting on which is obtained through a weight on the weight arm as shown in photograph, Figure 1. This down setting, in turn, for a given position on the weight arm, may be further controlled by throttling the discharge of pulp as it leaves the treating section of the machine by means of weight loaded check valve "F," as shown in photograph, Figure 1. The more the discharge is restricted by this check valve, the greater the tendency is for the rotor to lift and thus lessen the amount of work done by the beating element. This lifting effect is due to the hydraulic balance inside the machine, which results from the design of its rotating parts, together with the use of a reverse flow of pulp in its treating section (namely, from a large diameter to a small diameter end), which results when the circulating space "E," Figure 2, inside the tester, is stopped off as it is in the Camas machine. In other modifications of this unit, this circulating space inside the machine is utilized. This accounts for its inclusion in the design of the tester.

In connection with the travel of the pulp through the machine, reference has been made to the pulp taking a spiral course as it descends from the top to the bottom of the charging hopper. This is accomplished by a spiral screw in this hopper, which is not shown in Figure 2. Another point which is not shown in Figure 2 is the air relief and drain outlet of the tester, which is, however, shown in photograph, Figure 1, to the left and alongside the charging hopper at its bottom end. This communicates with a pocket leading into the intake area "C" above the impeller "B" and its effect is to remove air from the intake area "C" when the tester is being charged, and also to serve as a drain for the pulp from the machine when it is washed out, under

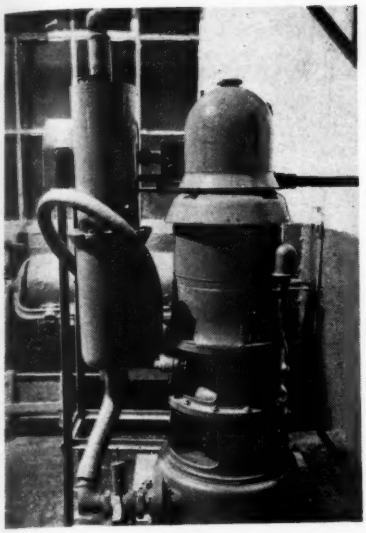


Figure 3, Camas installation showing side view of tester.

which condition the rotor is raised but left operating and the hose connected with this outlet is unstoppered and water is hosed into the top of the charging hopper. The location of this drain outlet is such that when the machine is shut down, it is left full of water and this is desirable in order to maintain the woods between the bars on the bed plate shell in proper condition. Pulp samples are taken by placing the sampling cup under the side outlet of the center tube in the charging hopper, which is shown in Figure 2 near the top of the charging hopper.

Development of Testing Procedure

● A great deal of experimental work was carried out to determine the method of operating the tester which would give the closest duplication of successive tests on a given sample.

At first, the method used was that of "floating" the rotor by hanging weights on the lever arm and allowing the rotor to "ride" on the stock while beating it. This method did not prove satisfactory because of uneven operation due to bouncing of the rotor which may have been caused by air pockets. A newer model of the Morden Tester may overcome this difficulty and allow this type of operation.

A method of setting the rotor each time to get the same bar clearance was tried but found to be unnecessary because of difficulty in getting exactly the same setting each time and also because the bar clearance would be changed by the slightest wear on the bars.

Various kinds of valves were used as "chokes" to keep stock under pressure in the treating section. The valve finally adopted was a check valve with a weight balanced against the flow of stock from the bottom of the treating section. This type of "choke" was chosen because of its more flexible operation. Should stock tend to clog the opening, a greater pressure will be built up by the impeller and force the valve disc open wider, thus clearing itself.

Testing Procedure

● The procedure is quite simple and foolproof. The operation of the tester is controlled by two switches on the panel board, Figure 5; one switch to start the rotor and one switch to operate the mechanism for maintaining constant load.

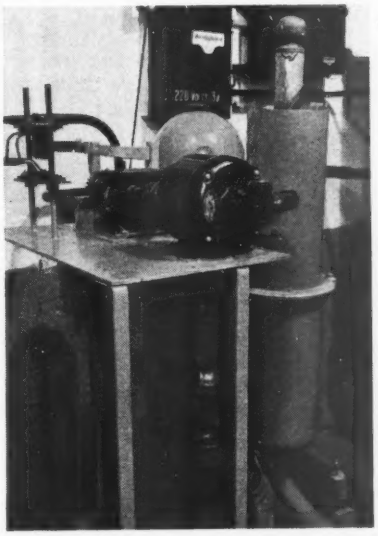


Figure 4, Camas installation showing mechanism for moving rotor up and down.

The charge consists of 280 grams bone dry stock which is beaten in the tester at 2 per cent consistency (total volume of 14 liters). The tester is filled with 13 liters of water which is first circulated to eliminate any entrapped air. Enough water is then drawn off to slush up the pulp sample and the necessary water added to make up the total volume of 14 liters. The slushed sample is introduced into the hopper with the circulating screw removed. After replacing the circulating screw, the pulp is allowed to circulate for one minute with the rotor rotating in a raised position. The weight on the check valve is lowered and the power control switch turned on. The rotor is now slowly lowered by the control mechanism taking about one minute to reach full load. As the rotor is lowered (i. e., the bars are being moved closer together), the power input to the tester's motor increases until a power input of 2.4 kilowatts is indicated on the wattmeter, at which point the lowering is automatically stopped. As the beating continues, this same power input is maintained automatically by a lowering or raising of the rotor. For mill control tests, samples are taken from the top of the hopper at 2, 3, and 4 minutes from the time the power control switch is turned on. At the end of the test, the power control switch is turned off, which raises the rotor and automatically stops it. Since the principal consideration for evaluating pulp strength is the maximum Mullen developed on beating, the sampling points 2, 3, and 4 minutes were selected because these samples represent the top portion of the beating curve.

Standardization

● The bronze bars of the beating element were rounded on the leading edge when the machine was assembled, and a large number of pulp samples were run in the tester before it was actually put into mill service control. It was hoped that a type of edge had been put on the bars which would continue to remain as the bars were gradually reduced by use. That this has actually taken place is indicated by check tests made periodically on pulp samples from a bale of machine-dried pulp. The power regulator also tends to overcome any effect that a change in the sharpness of the bars might make. If the bars become rounded and allow the fibers to slide by with little work on them,

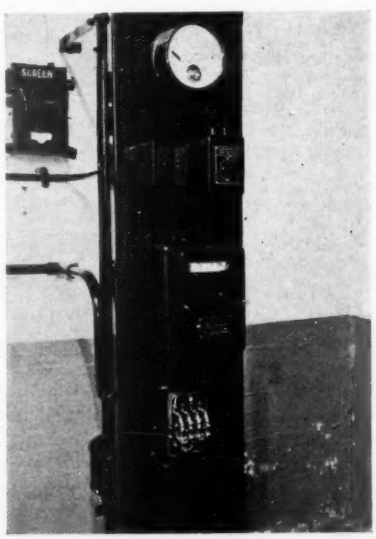


Figure 5, Electric control board from which tester is operated.

Minutes of Beating

Test No.		1	1½	2	2½	3	3½	4	4½	5	5½
I	Mullen	89		97		91		83		81	
	Freeness		645		540		455		315		205
II	Mullen	89		98		89		88		76	
	Freeness		640		575		440		335		220
III	Mullen	86		97		92		87		81	
	Freeness		640		590		460		335		235
IV	Mullen			100		100		87		81	
	Freeness		650		590		455		315		205

the power will be less and the regulator will cause the bars to move closer together in order to get the proper power input and thus tend to resharpen the edges. During a period of one year's operation with an average of 25 tests per day, the rotor has been reset twice (i. e., the shaft of the rotor has been moved farther down to allow for wear on the bars). This resetting has caused no change in the beating action as the power load is kept the same. Nearly 10,000 tests have been run in the tester with no need for resharpening the bars.

Results

● Checking tests are made periodically on the Morden Tester using a bale of dried pulp from which samples are disintegrated and slushed for testing. Considering twenty-seven separate tests made over a period of one year, the maximum Mullen varied from a low of 82 to a high of 92 with no particular trend toward higher or lower tests. The deviation from the lowest test to the highest test is 12 per cent of the average maximum Mullen for the twenty-seven tests. During this same period, similar checks were made on a 1½-lb. tub type beater using a similar bale of dried pulp. Of eleven tests made, the maximum Mullen varied from a low of 116 to a high of 126. This deviation from low to high is 8 per cent of the average maximum Mullen for the eleven tests. The Mullen tests reported for the 1½-lb. tub type beater represent an average test of three sheets for each sampling point, while the Mullen tests reported for the Morden Tester represent only one sheet for each sampling point. Thus, considering the greater possibility for errors from sheet variations using the rapid method of sheet-making, the accuracy of the Morden Tester approaches that of the 1½-lb. tub type beater, despite the shorter treating period.

Slush samples of pulp give closer checks than samples reslushed from dried sheets. The following four tests were made from a sample of slush pulp and show the ability of the Morden Tester to duplicate results.

Mullen tests are on a bone dry sheet of approximately 60-lb. basis weight. Freenesses are Canadian Standard.

● **Acknowledgment is due to C. F. Stevey, chief electrical engineer of the Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, Camas, who perfected the electrical control system for the Morden pulp tester.**

Finns Visit Coast Mills and Jobbers

● During March several visitors from Finland were on the Pacific Coast looking over the pulp and paper mills and one man was checking the possibilities of selling more Finnish newsprint in this region.

Konrad Schuster, recently appointed manager of the Finnish Paper Mills Association, was the scout looking into newsprint possibilities. Mr. Schuster's Coast visit was part of a world wide tour during which he is checking up paper markets. Finnish newsprint is sold at prices lower than the Canadians and Americans can afford to sell for and considerable tonnage is consumed by newspapers throughout the United States.

J. Brax, assistant technical director of the Finnish Cellulose Association was another visitor. His interest was in mill design operation and processes.

Mayhew on First Trans-Canada Flight

● R. W. Mayhew, managing director of Sidney Roofing Company, and member of the Canadian house of commons for Victoria, was a member of the party who made the inaugural flight of the Trans-Canada Air Lines from Montreal to Vancouver.

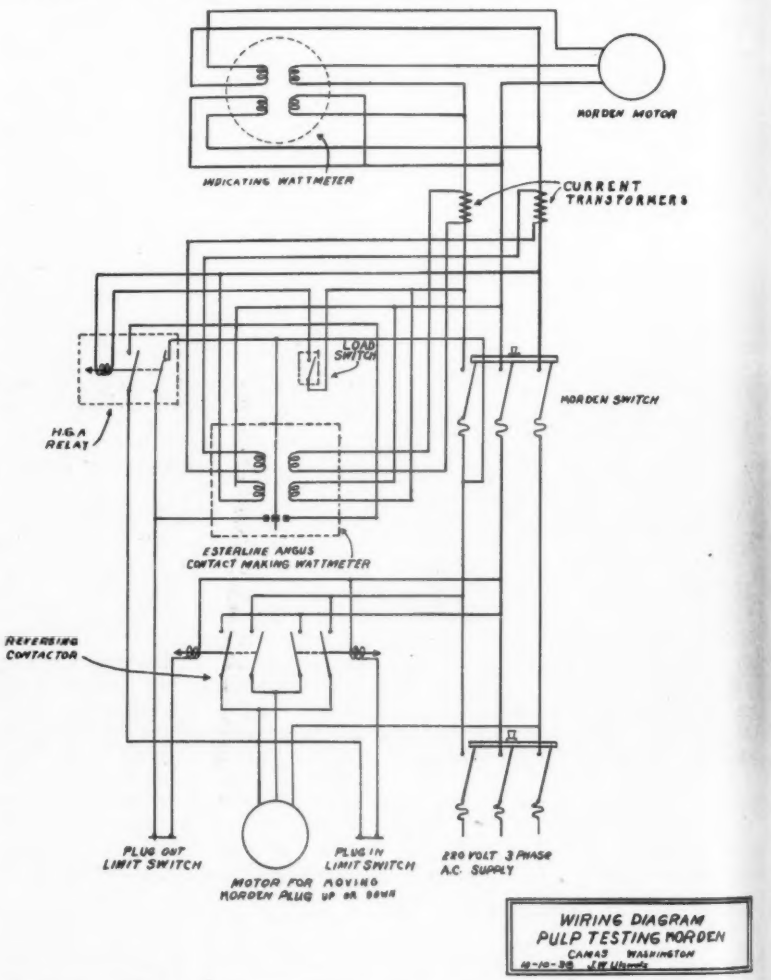


Figure 6, Wiring diagram with instruments in their relative positions as on the electric control board.

Pulp Union Committee Meets at Everett

Sixty-five delegates from the Washington State locals of the International Brotherhood of Pulp, Sulphite & Paper Mill Workers met in Everett on March 31st and April 1st as Washington State Committee—Voted against opening contract with mills

● Representatives from every local in the State of Washington of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers, sixty-five in all, met at the Labor Temple in Everett, March 31st and April 1st, to decide several questions.

The Associated Press carried the following story given out by the union Press Committee and published originally in the Everett Daily Herald:

"At conclusion of the first day's session the delegates had reached agreement on several issues of importance to the pulp and sulphite workers. The measures included their going on record not to open the agreement between employers and employes. This agreement, union officials stated, runs from year to year unless opened for discussion by either the workers or employers. The delegates' action precludes the possibility of any change in the agreement coming from their ranks, it was said. The delegates also started work drafting a program of procedure to be followed should the employers choose to open the labor agreement, which is now in effect in all the mills of the Pacific Coast.

"The conclave also went on record as opposing the shipment of scrap iron or raw materials to be used for war purposes. This action was taken in protest to the invasion of China by Japan and was written to effect all aggressor nations.

"The delegates also adopted a resolution opposing any changes in the Wagner Labor Relations act.

"During the final day of the session numerous resolutions were introduced and concurred in among them being one commending the international president on his stand regarding the Wagner act.

"Discussing the problem confronting the industry due to the importation of foreign pulp, the representatives from 20 Northwest locals attending the convention, felt the matter primarily was a problem for the manufacturers, but they agreed to do all in their power to aid the industry in correcting the situation as much as possible."

● No announcement was made by the Press Committee concerning definite action on the part of the Washington State Committee in urging Washington representatives in Congress to work for measures to alleviate the pressure imposed upon the American wood pulp industry by depreciated foreign currencies.

However, a number of individual locals have taken action concerning the dumping of German pulp and so has the Everett Central Labor Council. The following telegram sent by Local 183 of the International Brotherhood of Pulp, Sulphite & Paper Mill Workers (Soundview Pulp Company local), is an example:

"The membership of Local 183, International Brotherhood of Pulp, Sulphite & Paper Mill Workers, of which there are approximately 500, request you to take immediate action in placing an embargo on all products entering the United States from Germany or German controlled countries. We refer especially to pulp and we endorse Honorable Mon C. Wallgren's efforts toward getting an embargo on the imports of pulp, which is of vital importance to thousands of workers in the pulp industry. (Signed) Local 183, Dan Stubbs, president, H. A. Sager, secretary."

The above telegram was sent to the following members of the State of Washington's delegation in Congress: senators Homer T. Bone and Lewis B. Schwellenbach; representatives Warren G. Magnuson, Mon C. Wallgren, Martin F. Smith, Knute Hill, Charles H. Leavy, and John M. Coffee.

MEMBERS OF THE WASHINGTON STATE COMMITTEE of the International Brotherhood of Pulp, Sulphite & Paper Mill Workers attended a two-day meeting in Everett, Washington, March 31st and April 1st.

Back row, left to right: Reid, Millwood; Batterson, Everett; Sullivan, Everett; Cole, Shelton; Knoll, Everett; Rinta, Longview; Lemley, Port Angeles; Hutchinson, Bellingham; Young, Everett; Adams, Vancouver, Washington.

Middle row, left to right: Lewis, Bellingham; Ast, Camas; Heatherington, Camas; Peterson, Port Angeles; Hill, Everett; Leibert, Tacoma; Moore, Shelton; Hanson, Longview; Jenner, Vancouver, Washington.

Front row, left to right: Barner, Camas, John Sherman, International Vice-President from Port Angeles; Larson, Tacoma; Van Buskirk, Longview, Secretary of State Committee; Sager, Everett, President of State Committee; Isaacson, Millwood; Loomis, Port Townsend; Adams, Port Angeles; James Killen, International Representative.

The Everett Central Labor Council sent a telegram directly to President Roosevelt saying, "Pulp from Hitler controlled countries is being dumped into this country. This dumping of cheap foreign pulp will ruin the pulp industry in the United States and cause widespread unemployment among the workers in this industry. Please do what you can to prevent this dumping."

The Washington State Committee decided to hold its next meeting in Port Angeles.

While the Washington State Committee went on record as opposing the opening of the working agreement with the mills which will be automatically renewed May 31st if neither employes nor employers ask for revisions, the Washington paper makers, the Oregon pulp and paper makers and the California pulp and paper makers remain to be heard from.

Mayor Edwards Working On Pulp Problem

● Mayor A. C. Edwards of the City of Everett returned from a visit to Washington, D. C., on March 28th with word that the Washington congressional delegation is now fully awake to the seriousness of the depreciated currency situation and the problem of German pulp dumping.

Mr. Edwards talked with Congressman Wallgren and Senator Bone and stated to PACIFIC PULP & PAPER INDUSTRY that he found these men convinced that a quota on wood pulp was essential to protect the American industry. "They will do all they can," said Mayor Edwards, "but it is up to all of us on the Coast to back them up with data and other forms of support so the officials in Washington will realize that the congressmen and senators have the full support of the people they represent in obtaining protection for the pulp industry."

Mayor Edwards is a strong believer in keeping our jobs at home especially what he terms "competitive production jobs," such as in the pulp industry.

"Our wage dollars turn over about five times according to those who study the buying habits of our people," said Mayor Edwards, who is also finance commissioner for Everett, "and this means that every dollar we keep at home by maintaining jobs for Americans is multiplied by five for they spend their money at home."

The Young Man's Opportunity

W. R. BARBER, Technical Director of the Crown Zellerbach Corporation, points out to the younger technical men how they can develop themselves and increase their value to the industry by preparing papers in competition for the Shibley Award. A talk given by Mr. Barber before the Dinner Meeting sponsored by the Pacific Division of TAPPI at Camas, Washington, April 4th, 1939

ANYONE must regard it a privilege—an honor—to address the assemblage this evening. It is one dedicated to the junior technically trained members of our Pacific Coast pulp and paper industry, in the presentation of the papers, the discussion of the papers and, most importantly in the sociability of good fellowship, in the name of the Shibley Award.

They say the good a man does lives after him. Kenneth Shibley was a believer in young men. He regarded it very seriously, made it a part of the practice of his profession and business, that the young men of today in our industry might not do else but become the responsible directors of it in all its phases upon the tomorrow which Father Time himself arranges for us. And what sort of a legacy shall we leave to these young men? Shall we leave them matured in experience, hardened in the habit of work, belligerent against discouragement, capable of balanced judgment, self-reliantly able to make their own decisions, intellectually honest with themselves as individuals as well as in their relations to society and of sound faith in democracy of industry and of government? Kenneth Shibley said yes, we shall not only believe in these things; we shall do them. We shall leave to them that part of our efforts, our successes, our failures in life which is indestructible by time, which neither rusts nor withers away; the heritage of teaching young men how to think.

Many of us knew Cap Shibley in life. These young men who have prepared and presented these papers are partaking of his sterling and lovable character though this Shibley Award established in his memory by Pacific Coast TAPPI.

Year after year upon this occasion we shall be reminded of, and refreshed in his faith and our responsibility in our young men. How many of us will leave an equally enviable heritage to our industry?

● Let me speak now to those who are seniors in our industry. What is to be your part and my part in the teaching of our young men how to think? Is it to be limited to coming here once a year to listen and applaud? Passing on to these young men their heritage of the years of experience of their elders is a matter of individual interest and concern for each of us. When one of these young men comes under you or under me, his ability to carry on when the inevitable time for our own departure has arrived becomes a matter of how good a mentor you or I happen to be in continuing the teaching him to think, on the one hand, and his own individual capacity for continuing to learn to think. We cannot, and must not do the thinking for him.

Each of these five men who have made the effort to compete in this first year of the Shibley Award must surely know within himself that he is the better off for having done so, regardless of the prize. In the first place he is a more intelligent human being; he has accumulated some items of knoweldge he did not possess before; he has thus put some money in the bank, so to speak as regards his position in the industry in the years to come. He has enlarged his capacity for conveying his thoughts and convictions to others. Perhaps in the preparation of his paper and its presentation he has made mistakes which he himself now is able to discern. These should be the profits of the experience. I cannot, nor would I praise these men, but I do commend them, because they have taken the opportunity offered them to do something for themselves; they have shown a capacity and inclination to do their own thinking.

As one who has had, and enjoyed, the experience of selecting for employment and "bringing up" quite a fair number of technical graduates when they have chosen to cast their lot with pulp and paper, I am quite

unorthodox enough to say that I have no particular quarrel with our colleges and universities nor any magnanimous counsel to offer them. I have become aware that mass-production of intelligence through the medium of the college curriculum offers no criterion of judgment in respect to the probable outcome of a technical graduate's ultimate competency. Aside from the degree, too much else, in fact the determining factor lies inherently in the individual.

Neither do I believe that industry, and the pulp and paper industry in particular, owes the privilege of a waiting job to every young man who should choose to think that he would like to be a chemical engineer of sorts. There can be surpluses of college graduates as there are of cotton. I have no fear of an injustice being done those of the multitude who are not mentally lazy, who are willing to put in the extra effort of exercising their brains. The pulp and paper industry will find places for those well enough. There is one thing we do want the college or the university to have done to these young men; to have hammered into them the fundamental principles of chemistry and engineering. Devoting for four or five years to a technical curriculum is not technology. It is but acquiring the tools of technology. Courses in "pulp and paper" have no place in the curriculum of the undergraduate, at the expense of sound teaching and inculcation of the basic principles of mechanics and chemistry. To the undergraduate to whom the graduate school is denied, the mill wherein he goes to work becomes the best graduate school of them all, provided he has by then the mental capacity and resolution to discipline himself to be his own instructor. No technical graduate of one of our colleges enjoys thereby a special privilege by virtue of having "been to college." He has acquired a set of mental tools shaped along a certain line of activity. He still must work.

• I have been asked innumerable times by the younger men in pulp and paper, both within and without my own supervision, to prescribe the sureties of success, the certainties of getting ahead in promotion of position and in increase of income. I know of but one worthwhile answer, and begging excuse for the inclinatioin which grows upon us to give advice, that answer is WORK; the doing of today's tasks in a way of intelligence and studied competence in excess of the amount your company expects to be paying for their performance. Worry not about what happened yesterday; yesterday is over the dam, a part of the eternity of the past. Profit only by yesterday's mistakes. Avoid overly ambition and concern in anticipating tomorrow; tomorrow is of the future and never comes. And I can say to the young technical man who takes the time off his work to approach the boss to inquire "how he stands" that he is asking a foolish, useless question. If he has the conscientious conviction in his own mind that he is giving the sweat of his brains to the job, away from the time card as well as on it, is dependably making the job of his boss easier by going ahead and doing things and doing them right, is giving his company at least a profit over and above the amount in his pay envelope, he need not inquire where he stands. Promotion will take care of itself.

In following out the far vision of Cap Shibley in establishing the Shibley Award, devoted to the giving of this opportunity to our younger members to make better technical men of themselves by their own effort, the executive committee of Pacific Coast TAPPI has set an outstandingly worthy example. It should not be necessary for the program chairman of our next year's series of dinner meetings to beg and coax and cajole you young fellows, present or absent, into exerting the effort to prepare a paper and present it. The monetary prize is the least of the reward. It is by such fruits of your industry that you shall justify the faith of Kenneth Shibley in you.

Financial Reports

• **Badger Paper Mills, Incorporated** of Peshtigo, Wisconsin, report a net profit for 1938 of $225,145 as compared with $269,366 for 1937. Earnings were equal to $3.38 per common share after deduction of preferred dividends, compared with $3.61 for 1937.

Net sales were larger in 1938 than in 1937 with $2,610,692 in 1938 compared with $2,490,165 in 1937. Cost of sales was greater last year being $2,059,810 against $1,919,895 in 1937. Gross profit last year was $550,881 against $570,270 in 1937. Operating profit in 1938 was $317,581 after deduction of $233,000 selling and administration costs, while the 1937 operating profit was $352,264 after deduction of $218,005 in selling and administration expenses.

Net income in 1938 before taxes was $322,973 compared with $341,226 in 1937. Balance in the earned surplus account as of December 31st, 1938, was $535,842 compared with $479,412 at the close of 1937.

• **The Chillicothe Paper Company** reported for 1938 a net income of $19,612 as compared with a net income of $86,638 in 1937.

• **Consolidated Paper Corporation, Limited,** of Montreal, with five pulp and paper mills with a daily capacity of 2,215 tons, principally newsprint, reported a profit for 1938 of $3,406,745 including $69,098 income from investments and profit from sale of securities and after expenses, interest, carrying charges on properties not operated and bond and debenture interest of subsidiaries, but before provision for depreciation, depletion and interest on first mortgage bonds and debenture stock.

Profit in 1937 amounted to $4,679,220. Interest on first mortgage bonds and sterling registered debenture stock was waived by holders thereof for a period of three years commencing July 1st, 1936. The annual amount of such interest is $2,827,379.

Consolidated's five mills are located at Cap de la Madeleine, Grand Mere, Shawinigan Falls, Port Alfred and Three Rivers, Quebec.

• **Eastern Manufacturing Reorganized.** The Eastern Manufacturing Company of Bangor, Maine, producer of paper and rayon grade sulphite pulps, received approval by the Federal District Court at Bangor of its plan to reorganize.

A committee of seven members will be formed to put the details of the plan into effect at a reasonably early date, possibly in April. Later, creditors, including bondholders, will select two-thirds of the new board of directors. Among the committee tasks will be selecting a new name for the company, probably Eastern Pulp and Paper Company or Eastern Paper and Pulp Company.

• **The Robert Gair Company, Incorporated,** large board and container producer with headquarters in New York City, reports a loss of $23,388 in 1938. This includes the reports of subsidiaries and is after provision of $84,000 to reduce inventory of raw materials and after bond interest, subsidiary preferred dividends and other charges. Interest on 6 per cent income notes was not declared as there was no earnings from operations for 1938 available to pay it.

In 1937 the company reported a net profit of $557,127, including interest on 6 per cent income notes, equal to $3 per share on 185,592 shares of $3 preferred stock.

Current assets on December 31, 1938, including $273,720 cash and marketable securities, amounted to $4,746,632, and current liabilities, including $1,850,000

bank loans payable, were $3,446,619, compared with cash and marketable securities of $398,103, current assets of $5,245,218 and current liabilities of $4,446,585, including $2,400,000 bank loans payable at the end of the preceding year. Inventories were $3,048,115, against $3,396,489.

George W. Gair, chairman of the board announced at the annual meeting on March 23rd that profits for the year to that date had shown an improvement over a year ago.

● **The Hinde & Dauche Paper Company of Canada, Limited,** made a gross profit for 1938 of $707,906, with a net of $570,445 after depreciation and bond interest but before income taxes, according to a statement sent to shareholders by Sidney Frohman, president. A reserve of $83,000 has been provided for such taxes. Dividends totaling $299,933 were paid during 1938.

Bond indebtedness was reduced by $100,000 last May to $650,000. The company has no bank loans and ratio of current assets to current liabilities is 6.64 to 1 representing a working capital of $1,117,820.

The Canadian company's production during 1938 amounted to 70,923 tons, slightly under 6 per cent less than the 1937 production.

● **The Hinde & Dauch Paper Company** with headquarters in Sandusky, Ohio, and board mills in Brookville, and Muncie, Indiana: Fort Madison, Iowa; Gloucester City, New Jersey; and Sandusky, Ohio, reports a net profit of $645,778 for 1938 as compared with a profit of $1,451,636 in 1937.

● **The Munising Paper Company** reports net income for 1938 of $12,742, equal to 25 cents each on 51,681 shares of first preferred stock, compared with $157,586, or 80 cents each on 133,074 common shares in 1937 after dividend requirements on preferred.

● **The Nashua Gummed and Coated Paper Company** had a net consolidated profit of $194,804 during 1938, equal to $3.63 a common share after preferred dividends, as against earnings of $8.35 a common share reported for 1937.

● **The Rolland Paper Company, Ltd.,** of Canada, reports for 1938 net profit amounting to $126,930, equal after 6 per cent preferred dividends, to 61 cents each on 60,001 shares of no par common stock, against $146,913 or 94 cents a share in 1937.

● **Howard Smith Paper Mills of Canada** reports a net profit for 1938 of $948,231 as compared with $1,126,046 in 1937. During the year the company reduced its funded debt and bank loans by $938,000 and expended $356,000 on plant modernization. Net working capital at the close of 1938 was $2,763,773, $204,000 higher than at the close of 1937.

"Your directors find it rather difficult," said Howard Crabtree, president of Howard Smith in a letter to stockholders, "to forecast the outlook for the coming year owing to obscuring factors, amongst which might be mentioned the United States-Canada trade treaty, the effect of which cannot be determined until it has had time to make itself felt."

St. Regis Reports Loss

Invested Over Half Million Dollars During 1938 in Plant Improvements Besides Usual Maintenance

● The annual report of the St. Regis Paper Company and subsidiaries, including the St. Regis Kraft Company of Tacoma, was released March 21st by R. K. Ferguson, president of the companies.

A loss of $196,018.14 was reported for 1938 against a net profit of $1,228,155.93 for 1937. Net sales, royalties and rentals amounted to $12,722,896.59 in 1938, a decline of $2,145,967.01, or 14.4 per cent from the $14,868,863.60 in 1937. President Ferguson stated in the report that, "The reduced volume of sales resulted principally from lower selling prices which prevailed throughout the paper industry during the past year, and from curtailed production in most divisions below the production of the previous year. Operating income in 1938 fell to $358,327.05 against $1,618,535.77 in the prior year . . .

"During 1938 the other income of St. Regis dropped sharply as against 1937, due chiefly to the omission of common stock dividends by United Corporation which in the prior year produced $268,333.20 of dividend income to the Company from its holdings of 1,341,666 shares of United Corporation common stock. Net income of the Company for 1938 after all charges including $800,384.65 for depreciation and $151,888.80 provision for income taxes, resulted in a loss of $196,018.14 against a profit of $1,228,155.93 in the previous year. The net income figures do not reflect any benefit from the Company's equity in the undistributed earnings of Taggart Corporation which earnings amounted to $116,849.41 and in which corporation St. Regis Paper Company holds 230,000 shares of common stock out of a total of 816,633 shares of common stock outstanding . . .

"During the year the Company paid off $250,000 on its demand bank loan besides retiring subsidiary funded debts as follows: $39,500 Bates Valve Bag Corporation 6s due August 1, 1942, and Diana Paper Company 6s due serially to 1946.

"The management of the Company has continued to push development of new processes, to establish better technical control of production and to aim toward improvements in equipment at the various plants in order to improve the quality of its products. In the pursuit of this program, there was expended during the year for improvements and additions to property, plant and equipment a total of $566,535.81 besides the usual expenditures for maintenance of plant property.

● "The present indications point to a more favorable year for the Company in 1939, for, starting out with an improved position with respect to inventories, steadier price structure and anticipated expansion of sales; the Company is in a better position to show enlarged earnings than at the beginning of last year. There is especial encouragement to be derived from the expansion of building construction which is producing an increased demand for heavy duty multi-wall bags and filling machines for the packaging of food stuffs and chemicals continues to grow steadily."

Current assets of the St. Regis Paper Company and subsidiaries including cash of $2,189,056.84, were $7,312,136.53. Total current liabilities exclusive of demand bank loans were $1,403,807.88 as of December 31st, 1938. Demand bank loans secured by collateral amounted to $6,750,000. Total assets of the St. Regis Paper Company and subsidiaries as of December 31st, 1938, were $58,682,691.27. On December

ROY K. FERGUSON,
President
St. Regis Paper Company

31st, 1938, accumulated dividends in arrears on the preferred stock amounted to $47,25 a share or a total of $2,092,371.75. Total funded debt was $1,534,000.00. Fixed assets after reserves for depreciation were $27,817,925.83.

The St. Regis Paper Company owns and operates groundwood and sulphite pulp and paper mills at Deferiet, Norfolk, Raymondville and Harrisville, New York with a converting plant at Watertown. An insulating board mill at Oswego is under lease to Johns-Manville Corporation. Also at Oswego the company operates a plant for the manufacture of bag filling machines, parts and wire ties.

Pulpwood operations are carried on in New Hampshire and in Quebec through subsidiary companies. The Panelyte Corporation of Trenton, New Jersey, another subsidiary, produces laminated bakelite products under the trademark of "Panelyte." The St. Regis Kraft Company of Tacoma produces 170 tons of bleached and unbleached kraft daily.

The Bates Valve Bag Corporation operates multi-wall bag manufacturing plants at Nazareth, Pennsylvania; New Orleans, Louisiana; Emeryville and Los Angeles, California; Seattle, Washington; and, through The Valve Bag Company at Toledo, Ohio. The Bates Valve Bag Company, Limited, operates plants at Three Rivers, Quebec; Dryden, Ontario and Vancouver, B. C., with a sales and bag filling machine plant at Montreal. Bates International Bag Company operates subsidiaries and affiliates in 31 foreign countries.

Floyd L. Carlisle is chairman of the board of the St. Regis Paper Company whose other members are: Jonathan Bulkley, W. K. Dick, R. K. Ferguson, H. S. Lewis, H. E. Machold, R. B. Maltby, C. B. Martin, C. E. Norris and B. B. Taggart.

Officers are: Roy K. Ferguson, president; Carl B. Martin, R. B. Maltby, E. R. Gay, vice-presidents; W. J. Dixon, vice-president and secretary; W. H. Versfelt, treasurer and A. T. Robinson, comptroller. Ossian Anderson is executive vice-president of the St. Regis Kraft Company with headquarters at Tacoma.

British Columbia Pulp & Paper Company Reports Loss of $386,630 for 1938

Operating Loss $42,943—Interest Paid on 6% Mortgage Bonds

• Indicative of the dependence of British Columbia's pulp industry on the Oriental market, which was shut off last year by war conditions, British Columbia Pulp & Paper Company reported a loss for 1938 operations amounting to $386,630 after allowing for interest on bonded debt and provision for depletion and taxes. This bears striking contrast with the record of the prevous year when the company reported a net profit of $225,011.

"General conditions of world trade, and the impossibility of filling outstanding orders in certain countries due to restrictions imposed by their governments, combined to force reduction of operation of the company's mills," stated President Lawrence Killam in his report to shareholders. "Port Alice mill was closed for eight months and Woodfibre for nearly four.

"Other mills in North America were similarly affected. A published report on certain European mills indicates that their costs of production are higher than the prices realized.

"Partial operation while keeping the company's two plants well maintained, and low prices for pulp, have caused losses during the past several months, but the plants are now in better condition to meet demands for superior products than they ever were."

Mr. Killam reported that payment of interest on the 6 per cent first mortgage bonds was made in full. A total of $842,500 par value of these bonds was issued during the year for corporate purposes, and $182,000 was retired through the sinking fund.

Payment of interest due May 1, 1938, on the 7 per cent general mortgage gold bonds was made at that time. A meeting of holders of those bonds authorized the postponement of interest due November 1, 1938, to May 1, 1942, inclusive, together with interest previously postponed to November 1, 1940, to November 1, 1942.

No provision was made for depreciation during the past year.

• The profit and loss account shows operating losses held down to $42,943, from which $900 is deducted representing income from investments.

Directors' fees of $3,000, legal fees and executive remunerations of $37,633 and interest on bonded debt amounting to $303,953 accounted for the loss of $386,630. Deficit at December 31, 1937, was $1,040,042, so that the deficit at the end of 1938 amounted to $1,426,672.

The balance sheet shows inventories at $1,050,009 at the end of 1938 compared with $1,074,973 a year before. Including inventories, trade accounts of $129,466 and cash at $6,806, current assets were $1,186,281, with current liabilities of $661,029 leaving net working capital of $525,252. Net working capital a year previous totaled $682,315.

Main changes in current liabilities were an increase in secured bank demand loan and overdraft from $70,736 to $469,462, a decrease in accounts and wages payable from $318,602 to $152,370 and a decrease in reserve for income and other taxes from $131,829 to $7,892.

Scandinavian Mills Show Good 1938 Profits

• Reports of the 1938 operations of several Scandinavian wood pulp producers appearing in The Finnish Paper and Timber Journal and The Swedish Wood Pulp Journal indicate that their profits were sufficient to pay dividends of 9 or 10 per cent.

Wifstvarfs, A. B. of Sweden, showed a sales volume drop of but 15 per cent, due it is explained, "to most of the pulp shipped during the year having been sold at the earlier higher prices." The company showed a net profit of 2,470,000 kronor against 3,160,000 kronor in 1937.

The company's production of sulphite pulp declined but 10 per cent or 7,450 tons from 70,650 to 63,200 tons. Sulphate pulp production dropped from 44,300 tons to 37,100 tons.

Shipments of sulphite declined 8,550 tons from 70,900 tons to 62,350 tons.

• A.-B. Moalvens Trasliperi shows a net profit for 1938 of 86,000 kr., compared with 153,000 kr. in 1937 and 47,000 kr. in 1936. Together with 75,000 kr. profits brought forward, a sum of 161,000 kr. will be at the disposal of the shareholders' meeting. The directors propose that 5,000 kr. be carried to the reserve fund, that 3,500 kr. be appropriated for public utility purposes, and that an unchanged dividend of 8 per cent be paid to the holders of both ordinary and preference shares (76,000 kr.), leaving 76,600 to the carried forward.

According to the directors' report for 1938, work at the mill has proceeded undisturbed, with some reduction of production and exports. The output was 49,550 tons of wet mechanical pulp, compared with 55,000 tons in 1937, and 45,000 in 1936. The 1938 shipments amounted to 46,220 tons. At the turn of the year, a large part of the 1939 production was already sold. The company's mill was enlarged in 1938 to an annual capacity of 65,000 tons of wet mechanical pulp.

• Orebro Pappersbruks A.-B. shows a net profit for 1938 of 0,57 mill. kr., compared with one of 0,49 mill. for 1937 and 0,44 mill. for 1936. The directors

propose that a dividend of 6 per cent be paid on the share capital, which was doubled in 1938, and that 83,000 kr. (last year 10,000) be carried forward to next year's accounts. A dividend of 10 per cent was paid on the smaller share capital last year, and one bonus share was given for every two old shares.

● Uddeholms A.-B. shows in the preliminary balance sheet now published a net profit of 5,92 mill. kr., compared with 6,01 mill. for 1937 and 5.04 for 1936. This net profit has been arrived at after appropriation of 5,92 mill. kr. for depreciation of buildings, machinery, and equipment (last year 6,05), reservation of 1,60 mill. kr. for taxation (1,80) and of 0,50 mill. for the staff pension fund (1,00).

The directors propose that 3,36 mill. kr. be devoted to an unchanged dividend of 6 per cent to the shareholders, and that the profits carried forward be increased from 5,56 to 7,48 mill. kronor.

● The directors of Kymmene, A. B. are reported to have declared a dividend of 10 per cent for last year.

● The managerial board of Tammerfors Linne-och Jern-Manufaktur A. B. have decided to propose to the general meeting that a dividend of 10 per cent be distributed for last year.

● At the general meeting of W. Rosenlew & Company, A. B., which was held at Bjorneborg on February 20th, it was decided to pay a dividend of 9 per cent for last year.

Tom Beaune Visits Lebanon Mill

● Tom Beaune, sulphite superintendent for the Port Angeles mill of Fibreboard Products, Incorporated, recently visited the Lebanon, Oregon, sulphite pulp and paper mill of the Crown Willamette Paper Company, Division of Crown Zellerbach Corporation.

Yocum Transferred to Camas Lab

● Thurston Yocum, chemist, has been transferred from the Crown Willamette Paper Co. mill at West Linn, Oregon, to the central research laboratory of the Crown Zellerbach Corporation at Camas, Washington.

Swedish Pulp Index Shows High Production in 1938

● The Production Index of the Federation of Swedish Industries as published in the March 15th issue of The Swedish Wood Pulp Journal shows that Swedish wood pulp production remained well above the 1935 level for the first six months of 1938.

The General Index refers to Swedish industrial production in general. Basis: the average monthly production in 1935 = 100.

	Pulp and Paper Industry			General Index		
	1939	1938	1937	1939	1938	1937
January	94	120	113	117	120	114
February	.....	118	113	.....	120	115
March	.....	114	113	.....	119	116
April	.....	110	116	.....	119	119
May	.....	106	117	.....	118	119
June	.....	101	119	.....	116	120
July	.....	95	119	.....	115	120
August	.....	93	120	.....	114	122
September	.....	93	121	.....	114	122
October	.....	96	123	.....	114	124
November	.....	98	123	.....	116	123
December	.....	97	122	.....	116	122

Wallace & Tiernan Exhibit At Superintendents' Meeting

● At the annual convention of the American Pulp & Paper Mill Superintendents Association to be held in Washington, D. C., June 13-15th, Wallace & Tiernan Company, Incorporated, manufacturers of chlorine control and chemical feed devices will concentrate their exhibit on slime control and prevention in pulp and paper mills by chlorination and ammoniation and on microbiolgical control in paper mills manufacturing stock for food containers and food wrappers.

Wallace & Tiernan will be represented at the Superintendents meeting by R. C. Clement, J. E. Helquist and R. B. Martin, in addition to other technical representatives who are paper mill specialists.

Harry Andrews Gave Talk to Oklahoma Publishers

● Harry Andrews, control superintendent of Powell River Company, was one of the speakers at a conference of newspaper publishers in Oklahoma City recently. He spoke on newsprint problems encountered in daily newspaper pressrooms.

Crown and Rayonier Men Attend Stanford Conference

● The Crown Zellerbach Corporation was well represented at the Industrial Relations Conference held at Leland Stanford University, Palo Alto, California, late in March. Among those present was A. R. Heron, director of industrial relations, and from the Northwest came Clarence Bruner, West Linn resident manager; George Charters, Camas assistant mill manager; Vic Gault, Camas personnel manager; E. W. Erickson, resident manager of National Paper Products Co., Port Townsend; Arthur Berggren of Rayonier; George Cropper, from Olympic Forest Products Co., Port Angeles; M. L. Mammen, safety supervisor, and Otto Hartwig, social security consultant.

Pacific Mills Increases Vancouver Storage Space

● Building alterations at Pacific Mill's Vancouver, B. C., plant will provide more space for storage on the second floor. The alterations were completed early this month.

Simpson Completes Work at Lebanon

● H. N. Simpson of the Crown Zellerbach central engineering department, is now back in Port Townsend, Washington, after spending some time at the Lebanon, Oregon, mill during construction of the new digester building.

National Program For Bingham Pumps

● The completion of an expansion program by the Bingham Pump Company of Portland, Oregon, in establishing distributors throughout the United States, Hawaii, Manila, and Cuba with branch offices in the Graybar Building in New York City, was announced recently by Randolph Bingham, president.

The New York branch will maintain complete engineering and sales services under the direction of George Alexander, vice-president of the Bingham Pump Company. Alexander has long been identified with the pump industry, having for many years been president of the Hydraulic Institute.

The main offices and factory of the Bingham Pump Company are located in Portland, Oregon. During the last few years, the factory has been reequipped with the latest in manufacturing tools to take care of the rapid increase in sales of the company's products. Plans are now under way at the home office for additions to the factory buildings and additional new equipment.

One of the outstanding developments in the progress of the firm has been the establishment of an inspection department. This department is maintained to control precision in manufacturing of all Bingham products. Through constant inspection the high standards which users have long associated with Bingham pumps are continually maintained.

The Bingham concern functions with a large engineering staff headed by Carl Blom, chief engineer. Blom has won for himself a reputation as one of the outstanding hydraulic engineers in the country. Under his direction, a complete testing laboratory is maintained in the factory for the thorough testing of every pump under operating conditions before shipment is made.

All Pacific Coast pulp and paper mills are using Bingham pumps at the present time along with many midwestern, eastern and southern mills. Outstanding equipment developed by the Bingham concern for the pulp and paper industry includes the "Pulp Hog," a pump designed to take pulp from the doctor blades of deckers, washers, and thickeners without becoming air-bound. The "Even-Flow" pump, delivers white water or pulp at an even rate of flow and the "Comber," a unit that separates out "bunched fibres," without hydrating, cutting or bruising are two contributions of Bingham engineers. Another unusual pump is the "Foam-Liquid pump," which handles air or gas in foaming liquids without becoming gas-bound. The Horizontal Split Shell Double Suction Vacuum pump, is the only unit with the split shell for easy dismantling and inspection offered to the industry.

Bingham products are widely used by municipalities for water supply, also in large construction projects throughout the United States such as Bonneville Dam, Coulee Dam, and Boulder Dam. Other industries using Bingham units are the marine service and all branches of the mining field. Process industries have availed themselves of many of the company's products.

According to Mr. Bingham, "We have concentrated on producing the finest pumps designed by the best engineering minds available. Our growth can be attributed to the acceptance of high engineering standards and product performance."

Dr. Hibbert Reports On Solvent Pulping

● At the three-day meeting of the Canadian Pulp & Paper Manufacturers Association which ended January 27th in Montreal, Dr. Harold Hibbert, professor of Industrial and Cellulose Chemistry at McGill University, reported to the Administrative Committee of the Pulp and Paper Research Institute in part as follows:

"The session of 1937-1938 has been devoted very largely, as in the previous year, to investigations relating to the structure of lignin and it is a pleasure to be able to report that the solution of this problem now appears to be well in sight. In view of the results of our most recent investigations, it would seem that lignin is essentially an aromatic substance consisting of an aromatic nucleus (namely, the guaiacol radical in the case of softwoods, and both the guaiacol and syringyl radicals in the case of hardwoods) attached to a 3 carbon side chain represented by a hydroxy ketone. The difficulties encountered hitherto in the studies of lignin have arisen from the extraordinary reactivity of this alipathic side chain.

"We have been able to isolate this building unit and to show that it readily undergoes condensation reactions to give what are apparently the typical 'extracted' lignins. It is now possible to remove as high as 40 per cent of the native unchanged lignin in the form of distillable oils for which there is reason to believe a wide application will ultimately be found in the chemical industries. In addition to this 40 per cent of the lignin we are now able to obtain another 30 per cent in the form of distillable oils by reduction of the extracted lignin with hydrogen at high pressures. In other words, a minimum of 70 per cent of the so-called 'Klason' lignin can now be isolated in the form of products likely to be of considerable value in the chemical industries and it is confidently expected that this ratio can be increased to around 85 per cent. **These discoveries may exert a profound effect on the future of the pulp and paper industry in that they raise at once the question of how far solvent extraction will, in a relatively short time, displace other processes in the pulp mill and even in the grinding of wood. It is understood, for example, that experimental large scale pulping operations employing butyl alsohol are already under way in the United States.**

"Your Wood Chemistry Committee has reported, and the report is concurred in by the chairman of the Administration Committee, that these developments represent only long-range possibilities from the point of view of their influence on the status of the industry. I would be failing in my duty to the Association were I not to point out that such views are in my opinion likely to prove erroneous, and that putting aside any natural optimism and enthusiasm, **it is my considered opinion that most probably within the next five or six years there are likely to be fundamental changes in the manufacture of pulp and paper and that such developments are likely to accrue to the sole benefit of the southern states' industries unless adequate attention is given to the effect of this development on the Canadian situation.**

● "I wish to emphasize that this is not an alarmist view but one based upon the results of twelve years' investigations and also on a personal, intimate acquaintance with conditions in Europe, not only insofar as they relate to improvements on the scientific and technical side but also in regard to actual sources and supplies and rate of growth of raw materials. It is to be hoped that those responsible for the guidance of the affairs of the Association may give this matter the attention it deserves.

"It should also be pointed out that the United States Government, acting through the Department of Agriculture, is about to undertake the erection of four large research institutes in different sections of the United States for the purpose of carrying out intensive research work on products of the farm and presumably of the forest. Each of these is to receive one million dollars per year for research and while it would be somewhat unsafe to predict what developments are likely to arise from the expenditure of this vast amount of money, the writer believes that, if work is to be carried out on such a scale and is to include utilization of wood, the results will exert a very marked effect on the future economic status of the Canadian lumber, pulp and paper industries. In fact, with a ratio of tree growth advantage represented by four or five to one in favor of the southern states, the effect of such concentrated research is likely to lead to developments which may possibly threaten the actual existence of a future Canadian pulp and paper industry."

New Oregon Laws Affecting Forest Industries

● A number of new laws of importance to the forest industries were enacted by the fortieth legislative assembly in the State of Oregon.

H.B. 445, 446, 447 and 448 were companion bills and relate to the protection of a logging operation area against the start of spread of fire, requires counties to pay an acreage tax for fire protection on timberlands owned by counties, and requires a permit the year around for any operation conducted within one-eighth of a mile of forest lands. Any fire on forest land burning uncontrolled or without proper precaution against its spread is declared a public nuisance, and the owner must make every reasonable effort to control the fire. Failure to do so enables any forest officer to take steps to contorl the fire, and the cost will be a lien against the property.

H.B. 517 was another important forestry bill, authorizing the State Board of Forestry to acquire lands chiefly used for forest crops, watershed protection, grazing, erosion control and recreation, from any county, municipality or federal agency. The forestry board is to control logging on such lands. All revenues are paid into the general fund, credited 10 per cent to a state forestry development fund, and 90 per cent paid annually to the counties. The state board is given wide powers to develop state forestry.

H.B. 542 was passed, permitting a tolerance excess of 10 per cent in excess of the present truck load limit of 54,000 lbs. on the highway, and in excess of axle load limit of 17,000 lbs. S. B. 99, which would have allowed the use of log scale measurements for determining loaded weight, was passed by the legislature, but was vetoed by the governor.

H. B. 105 authorizes the state labor bureau to cooperate with the federal government in the enforcement of the fair labor standards act.

● H.B. 458 in effect doubles the effective rate on corporation incomes. The rate is still eight per cent on net incomes, but the personal property tax off-set is reduced from 75 per cent to 50 per cent. S.B. 456 provides a broadening definition of tangible personal property to include machinery used in the manufacture of raw or partially manufactured products. Machines such as planers, etc., previously assessed as real property, may now be assessed as personal property, thus increasing the amount of personal property tax that can be used as an offset against the corporation excise tax under H.B. 458.

House Joint Resolution No. 13 was adopted, setting up an interim committee to make a study of employers' rates of contribution for the various occupations subject to the provisions of the workmen's compensation law.

H.B. 394 is a long and comprehensive series of amendments to the Unemployment Compensation Act, some of which make substantial changes. It will prove to be of importance to all industries in the future. Its nature is such that it cannot be summarized in the present space available.

Oji Paper to Build Pulp Mill in Manchukuo

● Reports appearing in the Japanese press state that the Manchukuo government has given the Oji Paper Manufacturing Company permission to build a pulp mill at Chinchow in Manchukuo under the name of the Chinchow Pulp Manufacturing Company.

The new company will produce paper pulp from reeds growing over an area of 150,000 hectares in certain sections of Manchukuo (one hectare equals 2.471 acres). Oji is said to have already purchased 500 hectares of marsh-reed fields.

The Japan Advertiser of March 5th said the new firm would have a capital of 30,000,000 yen but the Osaka Mainichi on March 7th stated the capital would be 20,000,000 yen.

The Chinchow Pulp Manufacturing Company will have an annual capacity of around 15,000 metric tons.

One pulp mill, the Kangte Pulp Manufacturing Company which is owned by the Kanegafuchi Spinning Company, is said to be producing rayon pulp from reeds in Manchukuo.

The Chinchow pulp mill will be built at Kowfengtsu according to the news stories but a paper mill to utilize the reed pulp in producing paper will be constructed at Chinchow. The Japan Advertiser said, "Self-sufficiency of paper for Manchukuo is the final object."

Frank Drumb On Visit to States

● Frank Drumb, mill manager for Pacific Mills, Ltd., Ocean Falls, B. C., recently visited at Camas, Portland and San Francisco. Early in April he spent a few more days in Portland while enroute to the northern mill.

Badger Officer Calls on Distributors

● C. W. Hoper, vice-president, Badger Paper Mills, Peshtigo, Wis., was a recent Pacific Coast visitor.

Trade Talk

of Those Who Sell Paper in the Western States

Kenneth Ross Promoted To Middle Western Post

● Kenneth R. Ross for the past four years one of the leaders in the paper fraternity in Southern California left the latter part of March to take a new post in the middle west. Ken, as his many close friends knew him, will become district manager for the Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, at that company's office in Omaha, Nebraska. His work will take him into four mid-western states.

His first association with the paper industry was with the Hawley Pulp & Paper Company in Portland. He was transferred to the Los Angeles office of this company in 1935. In 1937 when the Glass Sales Agency became the Silklin Paper Company, Ken became manager and held this post until his current change of firm.

Ken was one of the founders of the Paper Mill Men's Club of Southern California and served the organization in many different capacities being one of the active leaders responsible for its great success.

Wm. Charbonneau, who has been associated with the Silklin Paper Co. in the Los Angeles office for more than a year was appointed to take Ross' place. Bill came to the company from Northern Paper Mills, Green Bay, Wis.

S. C. Carter of San Francisco became a member of the Los Angeles organization and will handle work formerly taken care of by Charbonneau.

Arthur Dunn Resigns As Paper Counsel

● Effective April 1, Arthur Dunn, Jr., resigned as counsel for the Paper Trade Conference, San Francisco. To take his place was appointed the legal firm of Agnew & Bockel.

Pell Going On Coastwide Lecture Tour

● San Francisco's explorer-paper merchant, Rodman Pell, president of the Pelican Paper Co., is going into the lecture business.

Pell has retained the services of Bruce Thomas as lecture manager, and will tour the Pacific Coast giving a series of lectures, accompanied by colored moving pictures.

The titles of Pell's lectures and pictures are: "Camel Trails to Damascus," "Rainbow Isles of the South Seas," "Palestine Under Martial Law," "The Land of the Headhunters," and "To Mexico In High Gear."

Pell has received much acclaim from the press for the interest and beauty of his pictures, and for his skill as a lecturer.

Hibbard Appointed Manager of Seaboard Paper Company

● R. H. Hibbard, formerly associated with Bonestell & Co., pioneer paper jobbers of San Francisco, has been appointed manager of the newly formed Seaboard Paper Company, according to an announcement by Harry D. Bean, vice-president and general manager of the latter concern.

Hibbard is a graduate of Stanford University and also attended the University of California. He has had several years experience in the paper, printing and associated industries. He is active in the San Francisco Junior Chamber of Commerce, and is editor of the Junior Chamber Magazine.

Paul Paganini has been appointed purchasing agent of the Seaboard Paper Company. He has had many years operating experience in both the printing and the envelope industries. Peganini was graduated from the University of Santa Clara.

Bean also announced that the company has added the Patten water marked mimegraphed paper to its lines. They have also taken on the Kalamazoo Vegetable Parchment manifold papers under the trade name of "Seaway Manifold."

California Merchants to Pay State Tax on Federal Sales

● A ruling that will bring headaches to California paper merchants as well as to other California business men selling goods to the Federal government went into effect April 1.

Effective that date the California State Board of Equilization ruled that such sales were subject to the three per cent sales tax. Some departments of the Federal government have indicated that they will reimburse the merchants for the tax.

Vernon Scott on Three Month's Trip

● Friends of Vernon Scott, president of Packer-Scott Company, Portland paper merchants, will be glad to hear of his recovery from an extended illness.

On March 16 he left with Mrs. Scott on a three months cruise. After visiting California, Mr. and Mrs. Scott sailed to the Canal Zone, Havana, Kingston (Jamaica), spending some time at the latter spot. They will return to Portland some time in June, again visiting California en route.

Ed Murphy Now Passing Cigars

● Edward M. Murphy, vice-president of Johnson, Carvell & Murphy of Los Angeles, was noted distributing cigars during March in honor of the arrival of his newborn son, Michael Dunn.

BM&T Appointed Exclusive Jobbers of Strathmore's New Staple Line

● A news item of interest comes from the headquarters office of Blake, Moffitt & Towne, that this pioneer paper organization will handle exclusively on the Pacific Coast the new Strathmore "Family of Staple Papers." This new line consists of Strathmore Text, Strathmore Fairfield, Strathmore Cover and Strathmore Bond.

This new "Family Group" brings the buyer a wide range of papers for printing uses. Each one an outstanding value—for its purpose and in its price grade. Behind each one stands 45 years of experience in fine papermaking.

Blake, Moffitt & Towne have long been identified with the Strathmore Paper Company and it is with a great deal of pride that they announce this new addition to their line of printing papers.

Golf Tournament Planned for Del Monte

● At the 1939 Pacific Coast Paper Conference, scheduled for May 11, 12, 13th at Del Monte, California, there will be a golf tournament for men and women as at past meetings.

G. J. Ticoulat is chairman of the golf tournament committee and serving with him on the committee are: M. M. Baruh, W. J. Gray, Andrew Christ, Jr., and C. Francis Jenkins.

Mr. Ticoulat has announced that the gentlemen's tournament will be on a thirty-six hole medal play basis while the ladies' tournament will be on an eighteen hole medal play basis. Handicaps are most important and Mr. Ticoulat urgently requests that those planning to attend and participate in the tournaments send their entry handicap and name and address of their club to him at 343 Sansome Street, San Francisco.

The first eighteen holes of the gentlemen's tournament and the eighteen holes of the ladies' tournament will be played on Friday, May 12th. The second eighteen holes of the gentlemen's tournament are scheduled for Saturday morning, May 13th.

There will be lots of prizes: for the low gross and best net in all classes, blind bogeys, gentlemen's approach and putting contest, ladies putting contest and for mixed two-ball foursomes.

Prizes will be awarded at the banquet on Saturday evening.

"Uncle Jake" Kindelberger Pays Visit to Coast

● J. Kindleberger, president, Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich., paid the Pacific Coast a business visit recently.

Borchers of Oxford Talks at Sales Meetings

● Mr. Frank A. Borchers, Manager of Sales of the Oxford Paper Company, makers of fine coated and uncoated book papers, with mills located at Rumford, Maine, and West Carrollton, Ohio, visited the Pacific Coast territory, stopping at all of the Blake, Moffitt & Towne divisions, who are exclusive agents on the Coast for their papers.

At the sales meetings held at each division, Mr. Borchers told of the new trends in paper making, the various problems confronting the paper manufacturers in view of the new type of presses being developed.

While in San Francisco, Mr. Borchers spoke before the San Francisco Club of Printing House Craftsmen on the subject "Modern Printing Plus Modern Paper." The meeting was held at the Engineers Club on March 16, and was well attended by all of the San Francisco and East Bay Craftsmen.

Mr. Borchers has had a long and varied experience in the paper business in both manufacturing and merchandising. He has spent a great deal of his time in contact with the very large magazine and periodical publication plants and is thoroughly familiar with the type of equipment they use and the paper problems that come up in connection with high speed, volume production, web and sheet feed, letter press and offset equipment.

Mr. Borchers also brought with him an outstanding exhibit of printing produced by Eastern plants, which was enjoyed by all. The Oxford Paper Company is one of the largest mills in the country and has the further distinction of having the largest paper manufacturing set-up under one roof at the main mill at Rumford, Maine.

Blake, Moffitt & Towne have handled Oxford paper for over 20 years and have the distinction of being the first jobber distributor to be appointed by Oxford.

Smith, Davidson & Wright Report Slight Profit Increase

● Gross profit of Smith, Davidson & Wright, British Columbia wholesale paper house, was $264,746 last year, compared with $256,571 in the previous year, according to the annual report issued this month.

This improvement was offset by an increase in expenses. General and administrative costs, including provision for bad debts and depreciation, amounted to $248,979 against $241,575, leaving net profit from operations of $15,767, only slightly higher than the $14,996 reported for the previous year.

The report reflects the sale by the company of 16,925 shares of Westminster Paper Company held in investment account, the wiping out of a $75,000 bank loan and improvement of $81,650 in net working capital. A reduction was made in the mortgage liability, trade liabilities were reduced and liquid position considerably improved.

The company made three payments of 1¾ per cent each on the 7 per cent first preferred cumulative shares during the fiscal year, a total of 5¼ per cent for the year. First payment of the new fiscal year, April 1, reduced outstanding arrears to 25 per cent. In the two previous years payments of 2½ per cent were made annually.

The statement shows a loss of $12,198 on this transaction. This was deduced from surplus balance as at Nov. 30, 1937, leaving $65,571. Including $15,767 profit on operations for the year ended Nov. 30, 1938, and $12,084 dividends from investments in the year, total income for the year was $27,851. The 5¼ per cent dividends on first preference stock required $11,639 and $5,205 was reserved for taxes on profits, leaving $11,007 to be added to surplus, bringing balance at end of the year to $76,578. Thus after providing for the $12,198 loss on investments, surplus at the end of the year was only slightly below the $77,769 reported at Nov. 30, 1937.

In investment account, in addition to the 273 Westminster Paper shares, $10 par, retained at cost $2,453, the company holds 147 shares of $100 par in Pioneer Envelopes Ltd., at cost $14,700 and 166 shares, $100 par, in Stanley Paper Co. Ltd., at cost $16,525.

Current assets are shown at $577,922 against $559,929, being made up of inventories at $379,380 against $424,421; accounts receivable is a reserve for bad debts $160,215 against $122,152; life insurance surrender value $9,314 against $4,416 and cash $29,013 against $6,572.

Current liabilities are shown at $234,488 against $298,045, being made up of accounts payable of $170,305 against $206,765; bills payable $60,083 against $86,980 and reserve for taxes on profits $4,000 against $4,300. As already stated the bank loan of $75,000 was wiped out. In addition mortgages on real estate and buildings were reduced from $36,596 to $32,505 while reserve for depreciation was increased from $42,848 to $44,505.

Preferred dividends in arrears, including both first and second preference, amount to 37¾ per cent, the statement shows. Trade bills under discount at $32,158 are also shown as contingent liabilities.

Bill White Receives 40-Year Service Pin

● William White, salesman for the northwest division of Crown Zellerbach Corporation, received his 40-year service pin from vice president Frank N. Youngman early in April, at one of the Portland sales meetings. Mr. White covers the fruit districts of Hood River and Medford, Oregon.

General Paper to Sell Mead's Process Plate

● The General Paper Co., San Francisco and Los Angeles, have taken on the Mead paper company's new line Process Plate. This is one of the new type sheets on which the coating is done during the manufacture of the paper. It is said to be specially adapted for magazine use.

Harold Zellerbach Returns From European Trip

● Harold Zellerbach, President of the Zellerbach Paper Company, who returned from a month's European trip April 5, was reluctant to answer any questions about the European situation. He did make it clear, however, that the tension is acute and not to be taken lightly.

More eager was he to talk of conditions in our own country, and to emphasize the fact that while world events are, and must continue to be, of interest to every American, we must think of them mainly as they affect us. For the moment, at least, he feels that "Work as Usual" should be the slogan of American business.

"With a full speed ahead policy of our own," said Mr. Zellerbach, "We can keep business on an even keel. When and if America is called upon to defend those policies laid down for us by the founders of our country we will not be found wanting. In the meantime, a period of intense activity, with no time out for prophesying or speculating, will reap the greatest benefit for every American."

Mr. and Mrs. Zellerbach were extensively entertained, both on the Continent and in England. One of the highlights of the trip, for the ladies of the party, was supper at the Tabarin Cafe on an evening when the Duke and Duchess of Windsor were present.

Edmund Getty a Coast Visitor

● Edmund Getty, technical man with the West Virginia Pulp & Paper Co., has been visiting the Pacific Coast. He made a trip to Los Angeles with D. D. Miller, Pacific Coast manager of the company whose headquarters are in San Francisco.

●

The Public Decides

"We sell to a public. That public doesn't have to buy of us. That public is a peculiar thing. It is busy, fickle, indifferent and exacting. We know less about it than we should. We do know, however . . .

"1. It's a fallacy that the public will automatically seek the best.

"2. It's a fallacy that the public knows the difference between price and value.

"3. It's a fallacy that the public will automatically reward enterprise and service.

"4. It's a fallacy that the public knows what it wants.

"5. It's a fallacy that the public will demand over any great length of time what it is not reminded of."

—From an address entitled "This Business of Selling—What Does It Take?" delivered by Homer T. Buckley of Chicago before the Paper & Twine Club Banquet in conjunction with the National Paper Trades Convention, Waldorf-Astoria, New York City, February 22nd, 1939.

German Barter Deals Subject to Extra Duties

● The Import Committee of the American Paper Industry has won its four-year battle for the imposition of countervailing duties on German merchandise sold to this country at low prices through barter transactions, according to a special report by Warren B. Bullock, manager of the committee. The report states that while Germany's seizure of Czecho-Slovakia undoubtedly expedited a decision by the attorney general on this issue, the fact remains that the action taken was exactly that for which the Import Committee has been persistently contending.

A Treasury Department order, isused March 18, instructs Collectors of Customs to collect, as a countervailing duty, the equivalent of any amount by which any importer profits through exchanges of American merchandise for German merchandise. To insure payment of such countervailing duties, a deposit of 25 per cent of the invoice value of imported merchandise must be deposited at the time of importation of the merchandise, in addition to the normal duties. The importers must also give bond to pay any additional duties which may be levied, if the 25 per cent deposit is not sufficient to meet the amount which later investigation may show to be due.

This provision is in addition to another order by which, for the time being, all Czecho-Slovak merchandise must be marked "Made in Germany," and this merchandise will no longer be entitled to the reduction of duties granted by the reciprocal trade agreement with Czecho-Slovakia. The trade agreement with Czecho-Slovakia is not yet nullified, however, as this Government does not, for the present recognize that the Republic is no more.

In 1935 the Import Committee of the American paper industry prepared and presented, through staff and counsel, the first protest of American industry registered at Washington against the barter practice. Following the example set by the Import Committee other industrial groups, including a powerful labor organization, joined in the movement. In 1936, the Treasury Department ruled that barter by use of scrip marks or credits was subject to countervailing duty, and a German mission to this country pledged Germany to abandon the practice. Instead, however, a new plan was evolved, by which direct barter was used instead of the previous method. The Import Committee insisted that this was still a "grant" in the words of the Tariff Act, and therefore justified the imposition of countervailing duties. The issue was submitted to the attorney general last November.

At one time it was thought that legislation would be necessary to correct the situation, but after Germany's seizure of Czecho-Slovakia Attorney General Murphy ruled in accordance with the position of the Import Committee.

All goods shipped after midnight, March 18, from Czecho-Slovakia must be marked "Made in Germany." The imposition of a countervailing duty requires thirty days notice, however, so such duties will be collected on all goods shipped from Germany or Czecho-Slovakia after midnight April 22, which is thirty days after official publication of the new ruling on March 23.

Under the barter practice, an American importer would buy American cotton, oil, copper or other commodities, and sell such merchandise in Germany at a profit of from 30 to 40 per cent. The credit thus received in Germany would be used to buy German merchandise for shipment to this country, the actual result being that the importer received a discount of 30 to 40 per cent, nominally a profit on the sale of American goods. Under this practice German paper was imported at a net cost to the importer far below the proper value, and sold at prices in some cases less than the actual cost in Germany. Under the new ruling any paper so shipped will be subject to a cash duty equivalent to the profits through the barter transaction, in addition to the normal duties provided by the Tariff Act of 1930.

● Paper now being imported from Germany, Austria and Czecho-Slovakia subject to countervailing duties includes the following grades:

Book and printing
Fiber boards for shoes and trunks, etc.
Beer-mat board
Processed boards
Wet lithographic transfer paper
Cellulose wadding
Dry Mounting Tissue
Greaseproof
Tracing
Drawing
Vegetable parchment
Basic photographic
Baryta coated
Basic blue and brown print
Metal coated
Fancy decorated
Filter masse
Filtering
Writing
Papeteries
Manifold
Carbon and other tissues
Manufactures of paper

Duty-free merchandise is not subject to these Countervailing Duties.

The Import Committee is now exploring the possibilities of meeting the controlled market situation in other countries by measures similar to those applied to check the barter procedure.

Zellerbach Paper Employes Schedule Spring Party

● Zellerbach Paper Company employees are all practicing up on the latest dance steps for the big Spring Informal dance that is to be given by the San Francisco and Headquarters Division at San Francisco's new Aquatic Park Casino, April 29.

Leavick Transferred To Stockton

● Woodrow Leavick, formerly in the credit department, San Francisco Division, Zellerbach Paper Co., has been transferred to the Stockton Division as fine paper salesman in that territory.

Ahearn Visits Coast Paper Trade

● E. F. Ahearn, vice-president and general manager, John M. Hart Co., New York City, was paying a visit to his friends in the Pacific Coast paper trade last month.

Hunt Wins Zellerbach Golf Tournament

● Much friendly rivalry was engendered when Finley Hunt, wrapping paper department, and Milton Colton, fine paper department, Zellerbach Paper Company, San Francisco, battled it out on the links for the play-off of the gold tournament between Headquarters and San Francisco divisions.

After a ding-dong battle, in which a vociferous gallery played a large part, Hunt finally won. He was awarded a handsome trophy.

Agnew Passes In Vancouver

● W. D. D. Agnew, president of the Vancouver-Pacific Paper Co., wholesale paper distributors, passed away suddenly on March 31.

He was a native of Ontario and has lived in Vancouver since 1908. He served for some time as chairman of the wholesale bureau of the Vancouver Board of Trade.

Reeve Watson Exhibiting Oxford Movie

● Reeve Watson, advertising manager, Blake, Moffitt & Towne, showed the Oxford Paper Company's interesting movie, "Paper Making" before an interested group of students of the Academy of Advertising Art, San Francisco.

Legge of Howard Visits BM&T Divisions

● Visiting all the divisions of Blake, Moffitt & Towne early this month was H. A. Legge, managing director, Howard Paper Company, Urbana, Ohio.

Towne Returns From Extended Trip

● Arthur W. Towne, Blake, Moffitt & Towne, returned to his desk in San Francisco late last month following his attendance at the Paper Trade Convention in New York, and a swing through the South, where he visited the Standard Paper Manufacturing Co., Richmond, and other southern paper mills.

Kronk Promoted By Zellerbach Paper

● Richard "Dick" Kronk, formerly of the San Francisco Division, Zellerbach Paper Co., is now credit manager for the San Jose Division.

Shaw and Sprigg Awarded 20-Year Pins

● During March, 20-year pins were presented to Walter Shaw, San Francisco Division, and L. J. Sprigg, Los Angeles Division, Zellerbach Paper Co.

Russell Attridge Now a Young Grandfather

● Russell F. Attridge gained full fledged membership last month in the Society of Young Grandfathers when his daughter Particia (Mrs. Hal Newell) presented the family with a son, Val Russell. Mr. Attridge is one of the active members of the Paper Mill Men's Club of Southern California and associated with Johnson, Carvell & Murphy.

Strathmore Technical Man Visits Coast Distributors

● Walton M. Blackford, technical sales department, Strathmore Paper Co., West Springfield, Mass., recently spent two weeks on the Coast. He was met in Los Angeles by T. C. Macormack, Pacific Coast manager of the company.

Pilz Visits In California

● William J. Pilz, vice-president and general manager, Everett Pulp & Paper Co., Everett, Washington, accompanied by Mrs. Pilz, visited the Golden Gate International Exposition on Treasure Island, and also spent a week in Southern California recently.

Wanted—

Wanted used triplicate effect evaporators, also plate filters of press type. Please furnish specifications. Reply, Box 10, care Pacific Pulp & Paper Industry, 71 Columbia St., Seattle, Washington.

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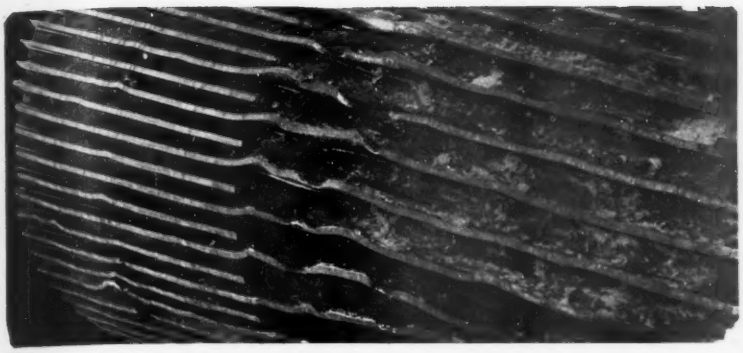
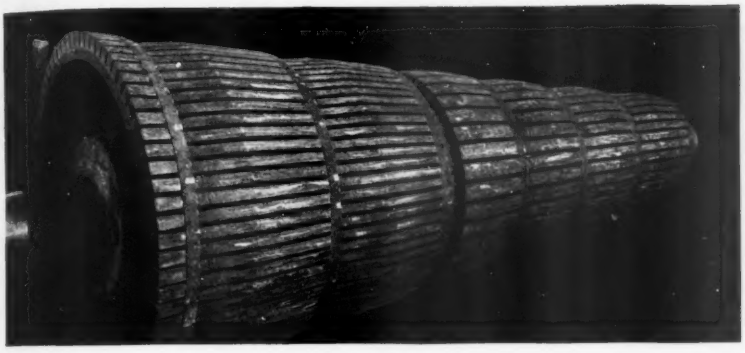


X-66 plug as it came from Jordan



Same plug with bars removed

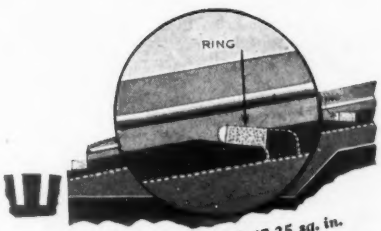
Any Jordan plug that can take on a threshing machine spike and come through like the Shartle X-66 plug shown above needs no further recommendation.

This unscheduled battle between Mr. Spike and Mr. X-66 plug recently took place in a Midwestern strawboard mill. There were fireworks aplenty while it lasted, but Mr. Spike was a poor loser. As you would expect, the bars of the X-66 were badly smashed up as you can see in the above photograph. But the plug core itself was not damaged in any way whatsoever.

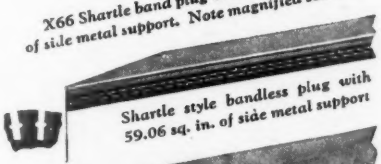
The reason this Shartle X-66 plug was able to stand up under such punishment is due to its super strength and double side wall support. Look at the cross sectional views at right . . . there are facts and figures that speak for themselves.

The long life, extra sturdy X-66 plug can be built in any size for use in any make Jordan. As you consider this plug, keep in mind that although hundreds of X-66 plugs have been sold, not one complaint has ever been received, not one plug has ever been returned, NOT ONE LUG HAS EVER BEEN BROKEN.

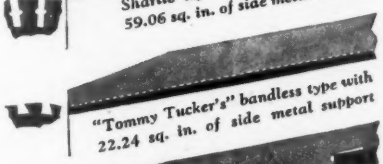
Let us have your trial order. SHARTLE BROTHERS, Middletown, O. Division of the Black-Clawson Co.



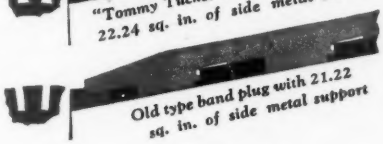
X66 Shartle band plug with 47.25 sq. in. of side metal support. Note magnified section.



Shartle style bandless plug with 59.06 sq. in. of side metal support



"Tommy Tucker's" bandless type with 22.24 sq. in. of side metal support



Old type band plug with 21.22 sq. in. of side metal support

SHARTLE BROTHERS

ONLY *Bingham* CAN OFFER A SPLIT-CASE VACUUM-PUMP

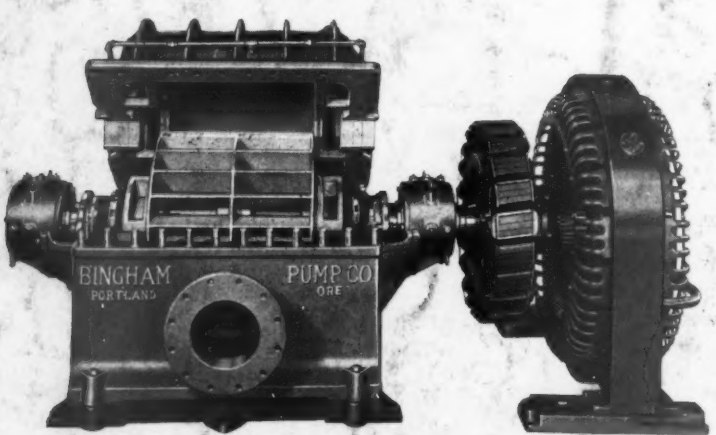
TO PULP AND PAPER MANUFACTURERS

The patented Bingham Double Suction Horizontally Split Case Vacuum Pump designed and built especially for industrial plants—highest in operating efficiency—requires minimum space for installation—***which means lowest installed cost!***

Bingham Vacuum Pumps operate without drumming due to the split case feature. Their operation is particularly quiet because there are no metal-to-metal contacts.

The rotating element is easily inspected by unbolting the cover section at the flange. This feature permits the rotating element to be removed vertically, as a unit, and eliminates the necessity of floor space for endwise removal of the shaft or any other part of the rotating element.

ALL THESE FEATURES ARE FOUND ONLY IN BINGHAM VACUUM PUMPS



Bingham Horizontally Split Case Vacuum Pump with top half of case raised to permit the inspection or vertical removal of the rotating element . . . no additional floor space is required to perform either service.

1. **Double Suction Split Case**
2. **Easy inspection and dismantling**
3. **Single moving element**
4. **No metal-to-metal contacts**
5. **No internal wearing parts**
6. **No internal lubrication**
7. **Special corrosion-resistant alloys**
8. **Handles liquid with air**
9. **Non-pulsating vacuum**
10. **No vibration or drumming**
11. **Minimum maintenance costs**
12. **Maintained high operating efficiency**

Bingham PUMP COMPANY

705 S. E. MAIN STREET
PORTLAND, OREGON